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'Discriminated against, stigmatised, afraid and on their own': a qualitative investigation of the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria

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'Discriminated against, stigmatised, afraid and on their own': a qualitative investigation of the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria

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Running head: Frontline physiotherapists

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Abstract

Objectives

Evidence-based guidelines recommend physiotherapy in the respiratory treatment and physical rehabilitation of patients with COVID-19. It is unclear to what extent physiotherapy services are utilised in the frontline management of COVID-19 in Nigeria. Therefore, this study aimed to explore the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria.

Design

Exploratory qualitative study of all consenting physiotherapists managing COVID-19 patients in the frontline in Nigeria. Qualitative in-depth semi-structured telephone interviews were conducted and transcribed verbatim. The transcripts were thematically analysed.

Setting

ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in Nigeria.

Participants

All consenting physiotherapists managing COVID-19 patients in the frontline in Nigeria.

Results

Eight frontline physiotherapists (three neurophysiotherapists, two orthopaedic physiotherapists, one cardiopulmonary physiotherapist, one sports physiotherapist and one rotational physiotherapist) provided consent and data for this study. Four themes and thirteen subthemes were generated illustrating discriminatory experiences of frontline physiotherapists, particularly from COVID-19 team leads; lack of multidisciplinary teamwork within COVID-19 teams; wide ranging stigmatisation from extended family members, colleagues, friends, and the general public; material and psychosocial personal losses; lack of system support; and suboptimal utilisation of physiotherapy in the management of COVID-19 in Nigeria. Personal agency, sense of professionalism, previous experience managing highly infectious diseases, and being a cardiopulmonary physiotherapist were the factors that facilitated the frontline physiotherapists into being involved in managing COVID-19 patients. However, discriminatory experiences drove some of these physiotherapists out of remaining involved in managing COVID-19 patients in the frontline. Most of the frontline physiotherapists were not

cardiopulmonary physiotherapists which may have influenced their level of expertise, multidisciplinary involvement, and patient outcomes.

Conclusions

Currently, there is suboptimal involvement and support for physiotherapists, particularly cardiopulmonary physiotherapists treating COVID-19 patients in the frontline in Nigeria.

Keywords

Physiotherapists, Physical Therapists, COVID-19, Qualitative research, Nigeria, Africa

Strengths and limitations of this study

- This is the first qualitative study of physiotherapists involved in managing COVID-19 patients in the frontline in any Africa country.
- This study involved individual telephone interviews of all consenting physiotherapists managing COVID-19 patients in the ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in Nigeria.
- Interviews were audio-recorded, transcribed verbatim, and analysed using thematic analysis.
- A Public Involvement and Engagement consultation group informed the interpretation of the results of this study.

Introduction

Physiotherapy is recommended in the respiratory treatment and physical rehabilitation of patients with COVID-19¹. Physiotherapy may be indicated in the cases of COVID-19 patients who present with productive cough and are unable to clear secretions independently. High-risk patients are those with existing comorbidities associated with hypersecretion or ineffective cough (e.g., neuromuscular disease, respiratory disease, and cystic fibrosis), and they require physiotherapy. Physiotherapy is indicated for ventilated patients who show signs of inadequate airway clearance requiring airway

clearance techniques. Patients with severe respiratory failure associated with COVID-19 may require prone position to optimise oxygenation, and this should be overseen by the physiotherapist. Patients with ICU-acquired weakness due to prolonged protective lung ventilation, sedation and use of neuromuscular blocking agents require initiation of early rehabilitation by the physiotherapist after the acute phase of respiratory distress ^{1,2}.

Limited qualitative studies have explored the experiences of frontline physiotherapists managing COVID-19 patients globally. Most qualitative studies have explored the experiences of physicians and nurses in China and Europe ³⁻⁶. More recent qualitative studies have included physiotherapists among other health professionals in the United Kingdom ⁷ or involved only physiotherapists in Spain ⁸. Traumatizing and shocking experiences, limited material resources, feelings of a sense of duty despite significant personal risks, challenges managing a novel condition, resilience despite working challenges, and the need for support were common findings across these studies.

No qualitative study of physiotherapists involved in COVID-19 management in the frontline existed in any African country at the time of this study, a gap that this study aimed to fill. This is relevant as respiratory physiotherapy procedures may be aerosol generating, with important implications during this pandemic ^{1,2}. This is more so in Nigeria where physiotherapists do not routinely have infectious disease expertise. Furthermore, due to the nature of the pandemic, and limited resources in Nigeria, frontline physiotherapists in Nigeria may need material and psychological support. These can promote their health and safety which may be central for safe, effective and efficient patient management ⁴. In addition, frontline physiotherapists' experiences of managing COVID-19 patients in Nigeria may inform evidence-based public health policy, and clinical guidelines. The findings from this study can also guide the quality and direction of support provided to physiotherapists to ensure that they are effective in performing their duties. Finally, the results from this study can facilitate multidisciplinary teamwork in managing the pandemic which can positively influence COVID-19 outcomes in Nigeria.

Therefore, the aim of this study was to explore the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria. This study included a Public Involvement and Engagement consultation group to inform the interpretation of results.

Methods

Authors' background

All the authors were academic and/or clinical physiotherapists and included two women and three men. Their areas of specialty included community, cardiopulmonary, paediatric, and orthopaedic physiotherapy. All but one of the authors were working in Nigeria at the time of this study. None of the authors were working as frontline physiotherapists during the COVID-19 pandemic.

Public Involvement and Engagement consultation group

Cardiopulmonary physiotherapists (one from each state) who had been working in acute and critical care settings prior to the COVID-19 pandemic in Nigeria, in the states from which the frontline physiotherapists were recruited were engaged in the later stages of the data analysis to inform the interpretation of results. They provided information on the scope of physiotherapy practice and multidisciplinary functioning and relationships within acute and critical care settings in the states prior to the COVID-19 pandemic in Nigeria. They described the embedding of physiotherapists in the health care institutions before COVID-19, specifically in the ICU and wards of the hospitals.

Study design

Qualitative in-depth semi-structured individual telephone interviews were conducted. The study was guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ) ⁹ and the Standards for Reporting Qualitative Research (SRQR) ¹⁰.

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Study setting

Attempts were made to recruit all frontline physiotherapists managing COVID-19 patients in the ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in all the states in Nigeria. All data were collected over the phone.

Sample size

Saturation is an ideal methodological principle in qualitative research which often indicates that further data collection and/or analysis of qualitative data is no longer necessary. It is widely regarded as the gold standard for determining adequate sample sizes in qualitative studies. However, there are several and often contradicting conceptualisation of saturation in qualitative research. For instance, data saturation is believed to occur when further qualitative data does not produce new information. Thematic saturation is reached when no new themes emerge from subsequent data. Theoretical saturation is reached when the entire constructs that make up a theory are already characterised in the collected data. Data saturation is reportedly emphasized during qualitative data collection; thematic saturation is seen as important during data analysis; and theoretical saturation is underscored during sampling¹¹. We had aimed at recruiting an adequate number of physiotherapists to ensure that data saturation was reached. However, it was discovered during the field work, that only about 20 physiotherapists were involved in the frontline management of COVID-19 in Nigeria at the time of data collection. We therefore decided to take a pragmatic approach, envisaging that recruiting about half of that number would be a realistic expectation. Considering the very small targeted population, we took steps to achieve a sufficient depth and breadth of an understanding of the experiences of the consenting frontline physiotherapists, rather than reaching a state of ‘completeness’ of data¹¹ as implied in a more traditional meaning of data saturation.

Participant recruitment

There were only a few physiotherapists managing COVID-19 patients as frontline practitioners (ICU and COVID wards in hospitals, COVID isolation and treatment centres) in a few states in Nigeria.

Therefore, this study attempted to recruit all consenting frontline physiotherapists involved in managing COVID-19 patients in government and private health facilities in Nigeria through purposive and snowball sampling. The physiotherapists were recruited through the national associations and physiotherapy professional groups in Nigeria including the Association of Clinical and Academic Physiotherapists of Nigeria (ACAPN), and the Nigeria Society of Physiotherapy (NSP). Invitation to participate in the study was also circulated through the social media platforms of physiotherapists practising in Nigeria. The eligibility criteria for inclusion in the study and the contact details of the lead author were included in the invitation letter. Instructions on how physiotherapists interested in participating in the study can contact the lead author were also documented. Interested participants who contacted the lead author were then provided a written information sheet about the study via email. The contact details of the interested participants were collected with which their eligibility was determined. Eligible physiotherapists were those redeployed to specifically manage COVID-19 patients in the frontline in the ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in any of the states in Nigeria. Physiotherapists who had only treated patients who had coincidentally tested positive for the corona virus or who developed the COVID-19 illness during their routine physiotherapy treatment for another health condition were not eligible. Eligible physiotherapists were contacted to identify a convenient day and time for the telephone interviews. Written and verbal informed consent were obtained prior to the interviews.

Procedure for data collection

All interviews were conducted over the telephone, in English and audio recorded by the lead author between August 2020 and January 2021. A semi-structured interview guide (Appendix 1) collected sociodemographic characteristics and explored participants experiences of managing patients with COVID-19 as frontline health workers in health facilities in Nigeria. The questions were informed by the objective of this study, and published literature on the experiences of frontline health workers managing COVID-19 patients around the world. The final set of questions were discussed and subsequently agreed by the study team. The interview guide was flexible allowing for detailed

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2
3 170 exploration of experiences. The interviewer (lead author) engaged each participant in a dialogue such
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5 171 that initial questions were modified in line with the content of participant’s responses. The interviewer
6
7 172 then probed interesting and significant perceptions that appeared, giving each participant the
8
9 173 maximum opportunity to tell their own story ^{12,13}.

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13 174 **Data analysis**

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15 175 Data collection was completed and anonymised before data analysis. Interviews were transcribed
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17 176 verbatim in English ¹⁴. Thematic analysis was then applied to the data using the qualitative data
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19 177 analysis software – Taguette (version 0.10.1) ¹⁵. The following six steps of thematic analysis were
20
21 178 undertaken: familiarisation with data, generating initial codes, searching for themes, reviewing
22
23 179 potential themes, defining and naming themes, and producing the report ¹⁴. For the first stage, the
24
25 180 lead author conducted all interviews. Four of the authors including the lead author listened to all audio
26
27 181 files, transcribed the interviews, and read and reread the transcripts. These increased familiarisation
28
29 182 and immersion in the data. An inductive approach to coding data was used. The lead author performed
30
31 183 the initial coding of the entire data which was then discussed with the research team to ensure that
32
33 184 the codes were grounded in the data. The initial codes were descriptive and provided the summary of
34
35 185 each portion of data. The descriptive codes which had similar or related meanings were then grouped
36
37 186 into interpretative or latent codes. These latent codes identified the meanings that lied beneath the
38
39 187 descriptive codes linking them together. Themes were then constructed from the descriptive and
40
41 188 interpretative codes in an iterative process. Coded data were reviewed for similarity and overlap.
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43 189 Codes which clustered around a similar issue were grouped together in one theme. The relationship
44
45 190 between themes and how they combine to produce an overall narrative were explored. The initial
46
47 191 themes were reviewed by the study team to ensure that they reflected the original data. Some themes
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49 192 were subsequently left as they were, others were collapsed together or split depending on their
50
51 193 coherence and underlying meaning. The resulting themes were then defined, named, and made
52
53 194 specific by highlighting the unique meaning of each in line with the research objectives. Finally, the
54
55 195 narrative report was produced with nuanced illustrations.

Results

Sociodemographic characteristics of participants

Nine frontline physiotherapists initially indicated interest in participating in the study. One of them subsequently declined participation and did not provide consent and any data. Table 1 presents the sociodemographic characteristics of eight frontline physiotherapists in three states (Enugu, Lagos, and Oyo).

Themes

Table 2 presents the themes produced from the thematic analysis.

Table 2: Themes depicting the experiences of the frontline physiotherapists'

Becoming and remaining part of the COVID-19 team, or finally exiting the team	Problems with multidisciplinary teamwork	Broad ranging impact on physiotherapists' personal and professional lives	Lack of support for perceived physiotherapy roles from prevention through to rehabilitation
The role of personal agency	<i>Lack of teamwork in the ICU and COVID wards of government hospitals</i>	Stigmatisation that is wide ranging	Physiotherapists' roles in COVID-19 management are not fully harnessed in Nigeria
Previous experience managing highly infectious diseases or being a cardiopulmonary physiotherapist	Discrimination of physiotherapists within COVID-19 teams	<i>Fear, anger</i> and having <i>'off days'</i>	<i>'On your own'</i> : lack of material and psychological support
Sense of professionalism	Better acceptance of physiotherapists in private non-governmental or state-owned non-hospital centres	Feelings of severe loss	Physiotherapists' reliance on self-support and support of one another
The breaking point: finally exiting the team			

1. Becoming and remaining part of the COVID-19 team, or finally exiting the team

The role of personal agency

The physiotherapists reported that their desire and efforts in joining the COVID-19 teams was driven by their own personal motivations rather than any external motivation from the health system or the government.

‘...it was personal motivation; government did not motivate me in anyway... (P8).

These included the physiotherapists’ innate ability to derive joy in improving patients’ lives, wanting to ‘do unto others as you would have them do unto you’, and the love for adventure and challenges, serving mankind and making impact.

‘...he [patient] still tells me “thank you for saving my life”...’ (P4).

‘I see it as a ministry...not just an occupation. It’s something you do to touch lives (P5).

‘Personally, I love challenges...’ (P7).

‘...I’d always looked for opportunities to serve...’(P3).

‘...I’m offering something to the community (P6).

The physiotherapists’ initial fear regarding the virus became replaced with a sense of purpose as they gained experience and confidence in their roles.

Previous experience managing highly infectious diseases or being a cardiopulmonary physiotherapist

The confidence and desire to be involved in managing COVID-19 patients appeared to be influenced at least in part by previous experience managing highly infectious and potentially fatal diseases.

‘...being in neuromedicine... I’ve had to attend to patients with HIV...tuberculosis...hepatitis... So...I just brought forward those ...knowledge and precautions...’ (P1).

232

233 The cardiopulmonary physiotherapist also appeared to be highly motivated in becoming and
234 remaining part of the COVID-19 team. This appeared to be due to his perception of his expertise in
235 this field into which the pandemic predominantly falls in. He did not appear to be influenced by lack
236 of remuneration or suboptimal provision of other resources. He regarded many COVID-19 related
237 complications as routine in his day-to-day physiotherapy services.

238 *'.....because my area of specialisation is cardio-respiratory... it's like, a calling to me... I decided*
239 *... whether they pay me or not, I will go and manage patients that have COVID...' (P6).*

240

241 One of the physiotherapists desired to support COVID-19 patients in their periods of pain, difficulties,
242 and hopelessness because of her previous first-hand experience of having life-threatening illnesses.

243 *'...I've had series of health conditions myself that got me thinking, will I ever be fine again? So,*
244 *I've had a first-hand experience of what it feels like to not have hope again. Just stay there and*
245 *be thinking like...let death just come already...' (P5).*

246

247 ***Sense of professionalism***

248 All the interviewed physiotherapists stated not being initially invited to be part of the COVID-19 teams.

249 *'...initially we were not invited... it is actually the physiotherapist that will have to go and be*
250 *telling them...like an advocacy...Even the presidential taskforce, does not even have*
251 *physiotherapy...' (P1).*

252

253 They were motivated by the desire to publicise the important role of physiotherapy in the successful
254 management of COVID-19 as well as the competence and skills of physiotherapists.

255 *'to my knowledge, I was the only physiotherapist in the frontline in the country as at that time.*
256 *...they saw the consequences of my action...they are now more well informed than they used*
257 *to be...when the coordinator of the isolation center is talking...he usually makes reference*
258 *to...physio, there was no time he's giving a progress report that he doesn't make reference to*
259 *physiotherapy' (P2).*

260 The efforts yielded some positive outcomes with reports of increasing people within the health system
261 having information about the role of physiotherapy in COVID-19 management.

262 *'...the national vice president had written to the NCDC, WHO...because I remember*
263 *there was a circular from the ministry of health requesting for the training of health*
264 *professionals, and they requested for physiotherapists...In this way, I think they are*
265 *getting to know. The national body has also submitted our own guidelines...' (P1).*

267 Half of the frontline physiotherapists appeared unfazed by their initial lack of recognition by other
268 members of the COVID-19 teams, and believed that other health professionals, particularly medical
269 doctors and nurses, would acknowledge the importance of physiotherapy when they observed the
270 positive clinical effects of their actions on COVID-19 patients. These physiotherapists expressed
271 confidence in the uniqueness of their knowledge and clinical expertise.

272 *'...I just usually do not feel bad because I know what I know and I know nobody that is*
273 *not a physiotherapist knows what I know and cannot do what I do. It was going to be*
274 *a matter of them appraising their actions before me coming... I acted, I acted, and they*
275 *saw the result of my actions. They saw the result of my actions, it gave me that feeling*
276 *of satisfaction, that feeling of "yes, I'm the boss", this field I know it better... I was*
277 *going to represent not just myself but the profession. I was going in to make a*
278 *statement, but for me how best to make a statement than your action and the result*
279 *of your action...I never felt threatened' (P2).*

281 ***The breaking point: finally exiting the team***

282 All the interviewed physiotherapists were disappointed that despite their increased advocacy about
283 physiotherapy, and perceived competence in discharging their clinical duties, their recognition and
284 respect within COVID-19 teams in Nigeria remained very poor. They believed that this was associated
285 with the teams being clinically and administratively led by medical doctors.

286 *'...We made our clinical presentation about patient management and how we are supposed to*
287 *be an integral part of the team. We made some recommendations. Then, we met the head of*
288 *the infectious unit team outside, he told us point-blank that there is no provision for us...' (P7).*

289 *'...So many things happened...that suggest we were not recognised. They [doctors] did not see*
290 *us as important. Why? Because it was the doctors that were coordinating everything. When*
291 *they were demanding for the names of those that should be paid, they requested forty names*

from the hospital. The coordinator who is a consultant [physician] decided to put the names of all the doctors and left out other health workers including physiotherapists, not even one of them...' (P8).

This led to three of the interviewed physiotherapists wanting to no longer be part of the COVID-19 team after the first COVID-19 wave in Nigeria. They refused to re-join the teams when the second wave started in Nigeria.

'...I was so discouraged that I did not want to be part of the team again. So, when the second wave started...I said I was not going back...' (P7).

2. Problems with multidisciplinary teamwork

All the interviewed physiotherapists expected a multidisciplinary approach to COVID-19 treatment in Nigeria which recognised the role of each professional group, providing equal opportunities for health professionals to bring on their expertise.

'...a multidisciplinary team in which everyone will work together as one without anyone thinking others are inferior...' (P6).

However, the frontline physiotherapists felt that this was deliberately not observed by the medical COVID-19 team leads in the government hospitals.

'...they see a condition that should be referred to "A" they hold it because they have grudges with "A". When they see a condition that should be referred to "C" they don't refer it because they want to take all the glory...whereas nobody is an island, so why not do your part and refer to the next person...(P3).

Lack of teamwork in the ICU and COVID wards of government hospitals

Multidisciplinary teamwork was reported as suboptimal in the government owned COVID-19 treatment and isolation centres and the government hospitals. All the interviewed frontline physiotherapists viewed the nurses as complementary and supportive of their roles, although this

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3 320 appeared to be sometimes hampered by poor infrastructure such as irregular electricity supply that
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5 321 impacted on the use of suctioning machines.
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8 322 *'...Times when I needed to turn the patient and the patient was bigger than me, if I*
9 323 *don't get the porter, I could get the ICU nurse to help me out...' (P5).*
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11 324 *'...most of the time suctioning is done by nurses in the wards...we may need the patient*
12 325 *to be suctioned during treatment. They do that for us. The only problem will be if there*
13 326 *is no light and there is no manual suctioning machine...(P1).*
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18 328 In contrast, the physiotherapists reported that most of the frontline doctors viewed other health
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20 329 professionals including physiotherapists as inferior, disregarding them as team members.
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23 330 *'...so the nurse was like...what you did today, I was in awe... The doctor that was on duty was*
24 331 *like "don't do that, don't do that, he will asphyxiate..." (P3).*
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26 332 Consequently, they believed that this led to doctors taking over the role of some multidisciplinary
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28 333 team members in the government hospitals.
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31 334 *'...it is the house officers [medical interns] that do the nurse's job...' (P8).*
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33 335 *'...the nurses doubled as record officers. I did not actually see them work in the ward...(P7).*
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35 336
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38 337 In contrast, multidisciplinary teamwork was perceived as adequate by frontline physiotherapists in
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40 338 the private COVID-19 treatment and isolation centres.
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43 339 *'...we had a very strong teamwork and team spirit, so it was really easy...' (P5).*
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49 341 **Discrimination of physiotherapists within COVID-19 teams**

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52 342 The six physiotherapists working in the government-owned COVID-19 health facilities felt that they
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54 343 were treated and regarded less favourably than other health professionals in the COVID-19 teams by
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56 344 the medical team leads.
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345 They perceived that this manifested as lack of remuneration, protective equipment, and
346 accommodation.

347 *'...the doctors are paid, and the physiotherapists are not being paid...' (P6).*

348 *'...Doctors are provided accommodation, we are not...' (P7).*

349

350 Three frontline physiotherapists reported not being informed, tested for COVID-19, or supported in
351 any way when they were exposed to the virus in contrast to their medical colleagues. They believed
352 that their discriminatory experiences were due to interprofessional rivalry.

353 *'...interprofessional rivalry in our clime here...there is nothing the medical doctor will do*
354 *without having a nurse ... They look at others as competing with them...' (P1).*

355

356 Three frontline physiotherapists working primarily in the ICU and COVID wards of government
357 hospitals and one frontline physiotherapist working in a private COVID isolation/treatment centre
358 reported attempts to either completely remove physiotherapists from the COVID-19 teams by the
359 government COVID-19 taskforce led by medical doctors, or to side-line physiotherapists by assigning
360 their roles to other health professionals by the hospital medical team leads. Three physiotherapists
361 reported feeling 'alone' and being the lone physiotherapist within their teams in contrast to other
362 professionals. They described relying on their knowledge of medical presentations and clinical
363 expertise to feel comfortable relating with the other health professionals.

364 *'...I felt like a loner because I was the only physiotherapist. Nobody could really relate with me.*
365 *I couldn't relate with most people. But because of the vast knowledge of my training, in my*
366 *pre-clinicals we did everything that medical doctors would do...did. So, I could relate with the*
367 *medical presentations better...' (P3).*

368 Over half of the physiotherapists reported no longer seeking validation from the medical teams after
369 learning to be contented with patients' appreciation of their positive clinical impact.

370 *'...so I wasn't really seeking...the validation from them [medical team leads]...' (P4).*

371 *'...I am not here to impress anybody but to make my patient better...' (P6).*

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6 373 **Better acceptance of physiotherapists in private non-governmental or state-owned non-hospital**
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8 374 **centres**
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11 375 In contrast to the experience of frontline physiotherapists engaged in government hospitals, the two
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13 376 physiotherapists in the private COVID centres felt accepted and recognised by the other team
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15 377 members. This was particularly by the medical team leads, after they had understood physiotherapy
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17 378 roles in COVID-19 management. The physiotherapists greatly appreciated this, and this seemed to
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19 379 encourage and motivate them.
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23 380 *'...the medical colleagues ... they are a wonderful set of people... they were just treating me*
24 381 *like a King... that acceptance from them...gave me the psychological balance to focus on what*
25 382 *I wanted to do...' (P3).*
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30 384 They regarded their acceptance by the medical team leads as even more important than the provision
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32 385 of physiotherapy equipment which was often lacking. These two physiotherapists also reported no
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34 386 discrimination in terms of remuneration, provision of accommodation and other services provided to
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36 387 other members of the COVID-19 team.
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39 388 *'...we were paid well...and they foot all the bills' (P3).*
40
41 389 *'...they provided accommodation to us and the other team members...' (P5).*
42
43 390
44
45 391 **3. Broad ranging impact on physiotherapists' personal and professional lives**
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48 392 ***Stigmatisation that is wide ranging***
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50
51 393 All the physiotherapists reported being stigmatised by physiotherapy colleagues who were not
52
53 394 involved in the frontline management of COVID-19 patients, other health professional colleagues,
54
55 395 extended family members, friends, acquaintances, or the general public for fear of contracting the
56
57 396 virus from them.
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397 *'Some people find it offensive when I try to say hi to them from a distance because I am*
 398 *involved with treating COVID-19 patients...(P7).*

399 *'I had been hearing about stigma... I didn't really know the impact in the lives of people until I*
 400 *was a front liner you know (sighs). I didn't tell anybody at home, I only told 2 of my siblings,*
 401 *and one of them is a step sibling and he went ahead to mention it errr...in a very demeaning*
 402 *way that err...I should not be allowed to do certain things that I actually wanted to do errrr...*
 403 *I can't go into the details of that because they are my personal life...the stigmatization really*
 404 *got to me for some days and I was like, is it a crime to actually be a health professional that is*
 405 *working to actually salvage his generation...? I think they just took advantage of the*
 406 *information I actually put at his door step and used it against me so I got to know that yes*
 407 *stigma could be a very difficult thing for COVID-19 patients themselves to deal with, so that*
 408 *made me actually know that if somebody is actually positive if he doesn't want to*
 409 *communicate about it I can really relate with him because it is quite difficult what people can*
 410 *do with stigmatization...'* (P3).

412 Two of the physiotherapists who were stigmatised by extended family members, found succour with
 413 some of their physiotherapy colleagues and friends.

414 *'...my colleague spoke with me; my friends just encouraged me...she really helped me... I should*
 415 *not put my mind there... I'm doing something very honourable and venerable so I should not*
 416 *allow anybody to get to my head...'* (P3).

417 Friends were the source of stigmatisation for two of the physiotherapists.

418 *'I mentioned it to my friend, since then my friend ran away from me because I was*
 419 *working in the isolation centre...'* (P8).

421 All the physiotherapists were stigmatised by the public.

422 *'...But another challenge we had to deal with was the thought of coming out of the centre,*
 423 *because the centre was located on the island. Even after you finished the work for the day and*
 424 *you clean up... once you step out of the centre, people see that you are coming out of the*
 425 *centre...everybody wants to avoid you...'* (P5).

427 Stigmatisation was reported as the greatest challenge by one of the physiotherapists, and she desired
 428 external support. For one of the physiotherapists, stigmatisation by the general public was through
 429 social media (Twitter and Facebook). He had gone public about his infection with the virus in a bid to
 430 make Nigerians understand the reality of COVID-19 and reduce the conspiracy theories regarding

1
2
3 431 COVID-19 in Nigeria. He was rather treated with suspicion by the Nigerian public who thought that he
4
5 432 was being used by the government. The physiotherapist was consequently concerned about the
6
7 433 possible impact of this on his family members.
8
9

10 434 *‘...people said that the government paid me money...Then I worried about my parents...my*
11
12 435 *siblings...’ (P4).*
13

14 436
15
16 437 He therefore avoided informing his family about his involvement and had to rely on the acceptance
17
18 438 and support from professional colleagues and religious associates. Consequently, most of the frontline
19
20 439 physiotherapists avoided informing family members and friends about their involvement in the
21
22 440 frontline. Three of the physiotherapists reported relying on their immediate nuclear family as their
23
24 441 only source of support. Physiotherapy colleagues were the source of stigmatisation for two of the
25
26 442 frontline physiotherapists, which they found difficult, as they were also dealing with discrimination
27
28 443 within COVID-19 multidisciplinary teams.
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31
32 444 *‘...they did not provide us accommodation like the doctors and others...so when we get to the*
33
34 445 *department, we were being treated like foreigners, because everybody started avoiding us...’*
35 446 *(P7).*
36

37 447
38
39 448 ***Fear, anger and having ‘off days’***
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42 449 All the physiotherapists gained confidence with a clearer understanding of their roles in COVID-19
43
44 450 management. Their initial fear about the uncertainty surrounding COVID-19 was no longer present.
45
46

47 451 *‘... Now, the fear, has been replaced with a sense of purpose...’ (P7).*
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49 452
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51
52 453 All the interviewed frontline physiotherapists were afraid of getting infected with COVID-19 or dying
53
54 454 from it in the frontline.
55
56

57 455 *‘...I mean I got COVID so... I was a bit scared...like...what’s going to happen, am I gonna*
58
59 456 *die? (P4).*
60

457

458 One of the physiotherapists was not afraid of death as he assessed his risk as very low, although he
459 also sought spiritual sustenance.

460 *'...I prayed about it and then, I allowed God to take control...' (P6).*

461 Two of the physiotherapists had their fear reinforced through communication with or infection of
462 other COVID-19 team members. They attempted to reduce this fear by taking steps to minimise the
463 severity of a potential disease or by convincing themselves that the benefits of their involvement were
464 worth the risk. For two of the physiotherapists, the fear of getting infected was paralysing, and they
465 described having 'off days' in relation to this, when they felt like being alone, and not being involved
466 in activities they usually enjoyed.

467 *'...I was feeling scared, ...really really scary, and I was really really down...' (P2).*

468

469 They described critically analysing their risk of exposure and infection during such 'off days'. Recovery
470 from this debilitating fear was facilitated by convincing themselves that they were unlikely to have
471 been exposed and infected or feeling that they were unlikely to experience a severe disease even
472 when infected, or remembering their patients with COVID-19 who were relying on them for survival.

473 *'...those that died ... are those having comorbidities, ... I didn't think I fit into that category...'*
474 *(P2).*

475 *'...the thought of the patients looking up to me made me want to get up...' (P3).*

476

477 One of the physiotherapists reported becoming angry at getting infected with the virus whilst working
478 in the frontline. He blamed himself and regretted exposing himself and his family members to the
479 virus in a health system that did not even acknowledge or appreciate his role as a physiotherapist.

480 *'I was angry because I got it because I volunteered. In the western world, when*
481 *volunteers go to an active environment, they are well protected. Coming into an*
482 *environment where you are not even acknowledged...' (P7).*

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6 484 All the physiotherapists felt that exposure to the virus and infection of some of their colleagues was
7
8 485 due to inadequate provision of personal protective equipment (PPE), and lack of support from both
9
10 486 the health system and the government.
11
12
13 487 The fear of infecting beloved family members had severe impact on physiotherapists' personal lives
14
15 488 and mental health. Family interaction and relationship became adversely affected as they stopped or
16
17 489 minimised contact with their close family members in an attempt to protect them.
18
19
20
21 490 *'...I would just get home and lock myself in the room... because of the fear...' (P5).*
22
23 491 *'...my wife, ...was pregnant, so we had to keep distance...' (P8).*
24
25 492
26
27 493 All the frontline physiotherapists were also dreading the possibility of losing their patients to
28
29 494 complications of COVID-19.
30
31
32 495 *'...Scary in terms of those in the ICU, on oxygen, with an SPO2 of below 80, nobody*
33
34 496 *wants a patient to die in his hands...' (P2).*
35
36 497 *'...as I am treating the patient, I will be like arrrh, this patient might not do well...(P6).*
37
38
39 499 **Feelings of severe loss**
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42 500 All the frontline physiotherapists expressed feelings of severe loss in terms of prolonged use of
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44 501 uncomfortable and restrictive clothing; little or no physical contact or support from family and friends;
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46 502 diminished social circle from reduced religious and other social activities; reduced physical activity;
47
48 503 adverse economic outcomes from loss of income from private practice; increased transportation
49
50 504 costs; and their patients dying of COVID-19 complications.
51
52
53 505 *'...having to wear a facemask every day, ...the back of my ears... are beginning to hurt (P4).*
54
55 506 *'...We have to protect ourselves with all these uncomfortable stuffs...' (P8).*
56
57 507 *'...limited my movement... Visiting friends has drastically reduced... churches were even locked*
58
59 508 *up...' (P1).*
60

'I had to avoid everybody, I had to avoid my wife, I had to avoid my kids, I had to be locked up...' (P7).

'...we were accommodated ...so I had to change my environment totally, I changed my friends, I changed everything...' (P3).

'...affected my work... I'm a private practitioner and patients were not coming (P3).

'...but when the pandemic came ...the cash flow was going down. There was financial strain... The financial impact affected me personally' (P7).

'...before, I could easily use a public transport...now I have to use Uber so it's even more costly...' (P5).

4. Lack of support for perceived physiotherapy roles from prevention through to rehabilitation

All the frontline physiotherapists believed they were supposed to be involved in preventive efforts, therapeutic strategies, and long/short-term rehabilitation. Preventive efforts entailed primary prevention of infection and secondary prevention of severe disease. The frontline physiotherapists emphasized increasing physical fitness and reducing deconditioning from COVID-19 lockdowns.

All but one of the frontline physiotherapists were not cardiopulmonary physiotherapists and they reported also fulfilling these roles.

'We all had to adapt as respiratory physiotherapists...' (P7).

This could be because many cardiopulmonary physiotherapists were not recommended to the frontline by their departments.

'...the department [physiotherapy] started choosing those who will go first ... I realised that I wasn't among those who were going...' (P6).

Physiotherapists' roles in COVID-19 management are not fully harnessed in Nigeria

All the interviewed physiotherapists reported being suboptimally involved in the therapeutic stages of COVID-19 management. They also did not view themselves as adequately involved in preventive efforts and in the rehabilitation and long-term management of the complications from the disease.

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3 536 *'they have...post infection symptoms, a lot of them require physiotherapy...but we don't see*
4 537 *them' (P1).*
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9 539 ***'On your own': lack of material and psychological support***

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12 540 All but two frontline physiotherapists felt unsupported by the health system and the government.
13
14 541 They interpreted the lack of provision of PPE, lack of sanitation facilities, lack of remuneration and
15
16 542 allowances, and lack of health and life insurance in the case of infection, severe disease, and death, as
17
18 543 very discouraging.

19
20
21 544 *'..... we don't feel confident that if you get infected that you are not on your own...' (P1).*
22
23 545 *'...we don't have equipment, we don't have good funding, remuneration is zero...' (P2).*
24
25 546 *'The PPEs were not the best quality, ... I had no help; I had no support...I was not even paid...'*
26 547 *(P7).*

27
28 548 ***Physiotherapists' reliance on self-support and support of one another***

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31 549 All six frontline physiotherapists in the government facilities reported learning to manage their
32
33 550 expectations and depend only on themselves and fellow frontline physiotherapists. More senior
34
35 551 physiotherapists were supporting and guiding the younger ones.

36
37
38 552 *'...and you call them [junior physiotherapists] before they start their work. ...how was your*
39 553 *night? Ask about their health. ... And then try to explain to them what happened the previous*
40 554 *day. If they have some cases that they think they [junior physiotherapists] need special*
41 555 *information about, we [senior physiotherapists] try to do that for them...' (P1).*

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46 557 **Discussion**

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49 558 **Statement of principal findings**

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52 560 The study explored the experiences of physiotherapists managing COVID-19 patients in the frontline
53
54 561 in Nigeria. Results highlighted that the physiotherapists' desire to be included in the COVID-19 teams
55
56 562 in Nigeria seemed to be predominantly driven by their personal agencies, sense of professionalism,
57
58 563 previous experience managing highly infectious diseases, or being a cardiopulmonary physiotherapist.
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3 564 The frontline physiotherapists, particularly those in the government hospitals in Nigeria, felt that the
4
5 565 road to becoming members of the COVID-19 team was arduous and came about through their own
6
7 566 sustained advocacy. Even so, some of them exited the team, and were no longer involved in the
8
9
10 567 frontline out of frustration. This was because they could no longer cope with the perceived
11
12 568 psychological, emotional, and financial impact of feeling discriminated against.
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15 569 **Interpretation within the context of the wider literature**

16 570 In contrast to the findings of this current study, the availability or lack thereof of PPE and COVID-19
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19 571 allowances were reported as a general problem affecting health workers in other studies in Nigeria
20
21 572 ^{16,17}, and China ^{4,5} which did not include physiotherapists. Inadequate provision of PPE appeared to be
22
23 573 affecting all health care professionals equally in studies that included physiotherapists in the UK and
24
25 574 Spain ^{7,8}.
26
27

28
29 575 Discriminatory experiences reported by the frontline physiotherapists is a novel finding in this study
30
31 576 and has not been reported by other studies. The frontline physiotherapists felt that they were not
32
33 577 regarded as legitimate frontline members of the COVID-19 teams in Nigeria. The frontline
34
35 578 physiotherapists in government hospitals expressed discrimination in relation to lack of remuneration,
36
37 579 inadequate provision of PPE and accommodation plus little or no professional recognition by medical
38
39 580 team leads. In contrast, the frontline physiotherapists in the private COVID isolation and treatment
40
41 581 centres in Nigeria reported being recognised, respected, and supported by their medical team leads
42
43 582 and other healthcare professionals in their teams. There were no reports of any form of discrimination
44
45 583 from the only qualitative studies of physiotherapists who were practising in the United Kingdom and
46
47 584 Spain^{7,8}. Discrimination of physiotherapists as frontline healthcare workers in the COVID-19 pandemic
48
49 585 in Nigeria may be associated with the interprofessional rivalry known to exist in the Nigerian health
50
51 586 sector ^{18–22}. The perceived or actual discrimination of other healthcare professionals by some medical
52
53 587 team leads in Nigeria might hamper professional autonomy, professional identity, professional
54
55 588 expertise and interprofessional harmony. Another reason for the discrimination of physiotherapists
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2
3 589 as frontline healthcare workers, particularly in the hospitals, could be because the COVID-19 teams in
4
5 590 these facilities were led by infectious disease medical experts. These specialists may have had little or
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7
8 591 no clinical interaction with physiotherapists in the hospitals prior to the COVID-19 pandemic probably
9
10 592 due to their limited involvement in acute care settings in Nigeria. It is therefore not surprising that the
11
12 593 frontline physiotherapists felt that their roles in health promotion, disease prevention, treatment, and
13
14 594 rehabilitation in relation to the pandemic were not adequately utilised. This might have adverse
15
16 595 implications for patients with COVID-19 in Nigeria.

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19
20 596 The lack of multidisciplinary teamwork and the perceived discrimination of physiotherapists in the
21
22 597 frontline by the team leads might undermine an effective response to the COVID-19 pandemic in
23
24 598 Nigeria. Teamwork is required for optimal quality and safety of patients, the well-being of healthcare
25
26 599 professionals, and good financial outcomes for healthcare systems²³. Experts have reported that
27
28 600 scarce resources during pandemics can trigger biases against other professionals, with team leads
29
30 601 likely to protect only their own group²³. This can stifle communication between team members, and
31
32
33 602 the coordination of equipment and other materials across professions and organisations that are
34
35 603 critical in implementing an effective response to the COVID-19 pandemic²³. It is recommended
36
37 604 therefore, that teamwork be characterised by effective coordination of expertise across professional
38
39 605 groups. Communication between professional groups should be accurate, timely, cordial and
40
41 606 reflective to enhance quality of care, and the financial output of health care institutions²³. The Nigerian
42
43 607 health system need to encourage clinical team leads that acknowledge the diversity of
44
45 608 multidisciplinary team members required in effectively and efficiently managing the pandemic.
46
47
48 609 Although hierarchy is a key feature of healthcare systems and fosters coordination, it can also hamper
49
50 610 inclusiveness²³. Inclusive behaviour from team leads can ensure that members from other professional
51
52
53 611 fields can feel psychologically safe to participate and collaborate with multidisciplinary team
54
55 612 members. Medical doctors lead the COVID-19 teams in Nigeria. In high income countries,
56
57 613 physiotherapists and other healthcare professionals have also successfully led COVID-19 teams. The
58
59 614 Nigerian healthcare system needs to adopt a multidisciplinary team orientation with leadership that

615 ensures the individual well-being of all health professionals within COVID-19 teams. This can be a great
616 asset in the current and future infectious disease pandemics in Nigeria.

617 It was surprising that only one of the interviewed frontline physiotherapists was a cardiopulmonary
618 physiotherapist. Comparison with previous studies is impossible because they did not specify the
619 physiotherapists' specialty areas ^{7,8}. The only cardiopulmonary physiotherapist in this study reported
620 not being initially put forward to join the COVID-19 team. He reported making personal efforts that
621 made him to be included later. Similarly, one of the cardiopulmonary physiotherapists in the Public
622 Involvement and Engagement consultation group also reported not being invited to join the COVID-
623 19 multidisciplinary team as a frontline physiotherapist. He reported that despite being the only
624 cardiopulmonary physiotherapist in his hospital, his physiotherapy department recommended
625 physiotherapists from other specialty areas to join the COVID-19 team. The reason for this finding is
626 unclear. However, the results of this study suggest that previous experience managing highly
627 infectious diseases may have been the major factor influencing the recommendation from
628 physiotherapy departments. This might explain why the highest number of the frontline
629 physiotherapists were neurophysiotherapists. In contrast, the private COVID-19 centres were
630 reported to have advertised for any available physiotherapists which may have led to none of their
631 recruited frontline physiotherapists being cardiopulmonary physiotherapists. This finding could be
632 related to the few cardiopulmonary physiotherapists currently working in Nigeria ²⁴. The involvement
633 of mostly non-cardiopulmonary physiotherapists in the management of COVID-19 patients in the
634 frontline in Nigeria might have meant that the frontline physiotherapists did not demonstrate the level
635 of cardiopulmonary expertise that would have been the case for cardiopulmonary physiotherapists.
636 This might partly explain the medical team leads underestimating the potential role of the frontline
637 physiotherapists in COVID-19 management in Nigeria. However, the frontline physiotherapists
638 reported experiencing discrimination prior to being given any opportunity to demonstrate their
639 expertise. The reported interprofessional rivalry between medical doctors and other healthcare
640 professionals in Nigeria ¹⁸⁻²⁰ may therefore be more important than the level of expertise of frontline

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3 641 physiotherapists in explaining the feelings of discrimination reported by the frontline
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5 642 physiotherapists.
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9 643 Reports of stigmatisation, fear, anger, feelings of severe loss, and lack of material and psychological
10
11 644 support were common findings in other studies. Physiotherapists in this study had experiences of
12
13 645 stigmatisation from physiotherapy colleagues who were not engaged in the frontline, other health
14
15 646 professional colleagues, family members, friends, acquaintances, or the public. In contrast,
16
17 647 physiotherapists in other countries did not report stigmatisation from their neighbours, acquaintances
18
19 648 and the general public as physiotherapists were usually not perceived as being in regular contact with
20
21 649 potentially infectious patients in their routine duties in those countries ^{7,8}. In Nigeria, the public often
22
23 650 do not understand the difference between physiotherapists and medical doctors which might at least
24
25 651 partly explain the stigmatisation of frontline physiotherapists by the public. There were no reports of
26
27 652 stigmatisation from physiotherapy colleagues, other health professional colleagues, family members
28
29 653 and friends in these studies ^{7,8}. In contrast, physicians and nurses managing COVID-19 patients were
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31 654 stigmatised by the general public in Iran ²⁵.
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36 655 The fear experienced by frontline physiotherapists in Nigeria were in relation to the novelty of the
37
38 656 virus, fear of infection, having severe disease, dying from the disease, or transmitting it to their loved
39
40 657 ones. This aligns with findings from physiotherapists in other countries including the United Kingdom
41
42 658 ⁷ and Spain ⁸, and experiences of other health professionals including physicians and nurses in China
43
44 659 ^{4,5}, and Iran ²⁵. The frontline physiotherapists in Nigeria felt anger in response to getting infected whilst
45
46 660 performing a duty for which they perceived they were not acknowledged by the team leads and the
47
48 661 health system. Anger was experienced by frontline health workers in relation to the perception of
49
50 662 abandonment by the government and breaking of lockdown guidelines in the United Kingdom ⁷.
51
52 663 Frontline physiotherapists in Spain felt anger at the roller coaster of other emotions they were feeling
53
54 664 including fear, sadness, illusion, rage, uncertainty, panic, worry, grief, loneliness, and anxiety ⁸.
55
56 665 Feelings of severe loss expressed in terms of restrictive uncomfortable clothing, loss of physical
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666 contact with family and loved ones, loss of spiritual activities, reduced physical activity and loss of
667 income from private practice due to the lockdown align with findings from other studies^{3–5,7,8,25}. The
668 complaints about the lack of provision of equipment, lack of emotional and psychological support in
669 the government hospitals, and feelings of abandonment reported by the frontline physiotherapists in
670 Nigeria have been felt elsewhere⁷.

671 **Strengths and limitations**

672 Despite the novelty of this study, its limitation was that data saturation could not be established due
673 to the limited number of physiotherapists engaged in the frontline management of COVID-19 in
674 Nigeria. Only eight of these physiotherapists consented to participate from the pool of about 20
675 physiotherapists engaged in managing COVID-19 patients in the frontline in Nigeria at the time of this
676 study.

677 **Implications for policy, practice, and research**

678
679 Increased advocacy for physiotherapy (particularly cardiopulmonary physiotherapy) involvement in
680 managing COVID-19 is required in Nigeria. Frontline physiotherapists involved in managing COVID-19
681 patients in Nigeria need to be better supported materially and psychologically, although they may
682 need to increase their level of expertise in this area. Nigeria needs a more inclusive healthcare system
683 with team leads that respect and engage other frontline healthcare professionals for the effective
684 management of the current pandemic and in preparation for future pandemics.

685

686 **Conclusions**

687 Physiotherapists managing COVID-19 patients in the frontline in Nigeria felt that they were not
688 regarded as legitimate members of the COVID-19 multidisciplinary teams by the medical team leads
689 and the health system. Their experiences of discrimination were made worse by experiences of
690 stigmatisation from extended family members, colleagues, and the public, coupled with perceived
691 material and psychological losses due to the COVID-19 pandemic.

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Declarations

Contributorship: CNI-C conceived and designed the study supported by RG. CNI-C collected the data supported by RG. CNI-C analysed and interpreted the data, supported by CA, AA, EA and RG. CNI-C drafted the initial manuscript supported by RG. All authors contributed to a revised edition of the manuscript and CNI-C prepared the final manuscript.

Ethics and other permissions: Ethical approval was obtained from the University of Nigeria Teaching Hospital (NHREC/05/01/2008B-FWA00002458-1RB00002323-July 2020). Written information about the objectives of the study was emailed to eligible participants who indicated interest in participating. A written and verbal consent was obtained prior to interviewing.

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References

1. Thomas P, Baldwin C, Bissett B, Boden I, Gosselink R, Granger CL, et al. Physiotherapy management for COVID-19 in the acute hospital setting: clinical practice recommendations. J Physiother. 2020;
2. Lazzeri M, Lanza A, Bellini R, Bellofiore A, Cecchetto S, Colombo A, et al. Respiratory physiotherapy in patients with COVID-19 infection in acute setting: a Position Paper of the Italian Association of Respiratory Physiotherapists (ARIR). Monaldi Arch Chest Dis. 2020;90(1).
3. Chuang E, Cuartas PA, Powell T, Gong MN. “We’re not ready, but i don’t think you’re ever ready.” Clinician perspectives on implementation of crisis standards of care. AJOB Empir

- 716 Bioeth. 2020;11(3):148–59.
- 717 4. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers
718 during the COVID-19 crisis in China: a qualitative study. *Lancet Glob Heal*. 2020;
- 719 5. Yin X, Zeng L. A study on the psychological needs of nurses caring for patients with
720 coronavirus disease 2019 from the perspective of the existence, relatedness, and growth
721 theory. *Int J Nurs Sci*. 2020;7(2):157–60.
- 722 6. Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, et al. A qualitative study on the psychological
723 experience of caregivers of COVID-19 patients. *Am J Infect Control*. 2020;48(6):592–8.
- 724 7. Bennett P, Noble S, Johnston S, Jones D, Hunter R. COVID-19 confessions: a qualitative
725 exploration of healthcare workers experiences of working with COVID-19. *BMJ Open*.
726 2020;10(12):e043949.
- 727 8. Palacios-Ceña D, Fernández-de-Las-Peñas C, Florencio LL, de-la-Llave-Rincón AI, Palacios-Ceña
728 M. Emotional Experience and Feelings during First COVID-19 Outbreak Perceived by Physical
729 Therapists: A Qualitative Study in Madrid, Spain. *Int J Environ Res Public Health*.
730 2021;18(1):127.
- 731 9. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ):
732 a 32-item checklist for interviews and focus groups. *Int J Qual Heal care*. 2007;19(6):349–57.
- 733 10. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative
734 research: a synthesis of recommendations. *Acad Med*. 2014;89(9):1245–51.
- 735 11. Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, et al. Saturation in qualitative
736 research: exploring its conceptualization and operationalization. *Qual Quant*.
737 2018;52(4):1893–907.
- 738 12. Smith JA, Spiers J, Simpson P, Nicholls AR. The psychological challenges of living with an

- 739 ileostomy: An interpretative phenomenological analysis. *Heal Psychol.* 2017;36(2):143.
- 740 13. Smith JA, Shinebourne P. Interpretative phenomenological analysis. *American Psychological*
 741 *Association*; 2012.
- 742 14. Clarke V, Braun V. Thematic analysis. In: *Encyclopedia of critical psychology.* Springer; 2014.
 743 p. 1947–52.
- 744 15. Rampin R, Rampin V, DeMott S. Taguette (Version 0.10.1). Zenodo. Zenodo; 2021.
- 745 16. Okediran JO, Ilesanmi OS, Fetuga AA, Onoh I, Afolabi AA, Ogunbode O, et al. The experiences
 746 of healthcare workers during the COVID-19 crisis in Lagos, Nigeria: A qualitative study. *Germes.*
 747 2020;10(4):356.
- 748 17. Uzosike TC, Dan-Jumbo A, Bob-Manuel M, Alali AA, Lawson DS. Care of the Covid-19 Patients:
 749 Experiences of Health Workers in Rivers State Nigeria. *Int J Trop Dis Heal.* 2020;1–15.
- 750 18. Mayaki S, Stewart M. Teamwork, Professional Identities, Conflict, and Industrial Action in
 751 Nigerian Healthcare. *J Multidiscip Healthc [Internet].* 2020;13:1223–34. Available from:
 752 <http://doi.org/10.2147/JMDH.S267116>
- 753 19. Salisu A, Hauwa I, Abubakar M, Ramla F, Mukhtar I, Nafisa N. Salisu AI, Hauwa IK, Abubakar
 754 MA, Ramla F, Mukhtar IG, Nafisa NY. Inter-professional rivalry in Nigerian health sector: a
 755 search for a potential beginning. *Kanem J Med Sci.* 2020;14(1):18–23.
- 756 20. Badejo O, Helen S, Seye A, Van Belle S. Confronting power in low places: historical analysis of
 757 medical dominance and role-boundary negotiation between health professions in Nigeria.
 758 *BMJ Glob Heal.* 2020;5(9):e003349.
- 759 21. Aregbeshola BS. Disharmony and unhealthy rivalry among health professionals in Nigeria.
 760 2018.
- 761 22. Alubo O, Hunduh V. Alubo O, Hunduh V. Medical dominance and resistance in Nigeria's

- 1
2
3 762 health care system. *Int J Heal Serv.* 2017;47(4):778–94.
4
5
6 763 23. Mayo AT. Teamwork in a pandemic: insights from management research. *BMJ Lead.*
7
8 764 2020;leader-2020.
9
10
11 765 24. Oke K, Birabi B, Oghumu S. Physiotherapists' level of involvement in patterns of acute care
12
13 766 cardiorespiratory physiotherapy practice in Nigeria. *Fizjoterapia Pol.* 2015;15(2):110–8.
14
15
16 767 25. Alizadeh A, Khankeh HR, Barati M, Ahmadi Y, Hadian A, Azizi M. Psychological distress among
17
18 768 Iranian health-care providers exposed to coronavirus disease 2019 (COVID-19): a qualitative
19
20
21 769 study. *BMC Psychiatry.* 2020;20(1):1–10.
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Appendix 1: interview schedule

1. Demographic information

Age

Gender

Education

Specialisation

Years of practice

2. Could you tell me about becoming a physiotherapist?
3. What do you like most about being a physiotherapist?
4. Could you tell me what led to you becoming involved in caring for patients with COVID-19?
5. Could you tell me about the activities you undertake in working with patients with COVID-19?
- Probe for knowledge; skills; social/professional role and identity; beliefs about capabilities; beliefs about consequences; environmental factors.
6. What do you think about the way COVID-19 is being managed in your health facility?
- Prompts: What are the expectations on you managing COVID-19? What are the facilitators or barriers to your treatment of COVID-19?
7. How has it been for you since COVID-19 started in Nigeria?
- Prompts: What are the differences between work before the pandemic and during the pandemic? What are the changes and challenges in your work since COVID-19?
8. What is it like for you to care for COVID-19 patients?

Prompts: How does it make you feel? What were your feelings before the pandemic, during the first day of COVID-19 treatment and currently?

9. How have you coped with the changes and challenges in your work since COVID-19?

Prompt: Has anything helped or made things more difficult? What is the available support and what support do you still need?

10. Can you tell me a bit about the relationship between your work and personal life?

Prompts: What was it like before COVID-19? What is it like now?

11. Is there anything else you want to tell me that I haven't given you the chance to talk about?

Probe for insights they may have had from this pandemic.

Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1/1-3
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	1-2/6-35

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	2-3/37-68
Purpose or research question - Purpose of the study and specific objectives or questions	3/69-71

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	3-7/86-166
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	3-4/73-77
Context - Setting/site and salient contextual factors; rationale**	4/90-93
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	4-6/94-132
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	26/669-672
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	6/133-144

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	6, supplementary file 1/133-144, supplementary file 1
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	7/168-175
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	6-7/146-166
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	6-7/145-166
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	7/152-161

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	7-20/179-523
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	7-20/184-527

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	21-26/529-663
Limitations - Trustworthiness and limitations of findings	25/643-648

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	26/675
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	26/673-674

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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****The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.**

Reference:
O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

For peer review only

BMJ Open

'Discriminated against, stigmatised, afraid and on their own': a qualitative investigation of the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria

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Keywords:	REHABILITATION MEDICINE, QUALITATIVE RESEARCH, PUBLIC HEALTH, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, COVID-19

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'Discriminated against, stigmatised, afraid and on their own': a qualitative investigation of the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria

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Running head: Frontline physiotherapists managing COVID-19 in Nigeria

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Abstract

Objectives

Evidence-based guidelines recommend physiotherapy in the respiratory treatment and physical rehabilitation of patients with COVID-19. It is unclear to what extent physiotherapy services are utilised in the frontline management of COVID-19 in Nigeria. Therefore, this study aimed to explore the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria.

Methods

This was an exploratory qualitative study of all consenting physiotherapists managing COVID-19 patients in the frontline in Nigeria. Qualitative in-depth semi-structured telephone interviews were conducted and transcribed verbatim. Transcripts were thematically analysed. The settings were ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in Nigeria. The participants were all consenting frontline physiotherapists managing COVID-19 patients in Nigeria.

Results

Eight frontline physiotherapists (three neurological physiotherapists, two orthopaedic physiotherapists, one cardiopulmonary physiotherapist, one sports physiotherapist and one rotational physiotherapist) provided consent and data for this study. Four themes and thirteen subthemes were generated illustrating discriminatory experiences of frontline physiotherapists, particularly from COVID-19 team leads; lack of multidisciplinary teamwork within COVID-19 teams; wide ranging stigmatisation from extended family members, colleagues, friends, and the general public; material and psychosocial personal losses; lack of system support; and suboptimal utilisation of physiotherapy in the management of COVID-19 in Nigeria. Personal agency, sense of professionalism, previous experience managing highly infectious diseases, and being a cardiopulmonary physiotherapist were the factors that made the frontline physiotherapists to become involved in managing COVID-19 patients. However, discriminatory experiences made some of these physiotherapists to stop being involved in the management of COVID-19 patients in the

frontline. Most of the frontline physiotherapists were not cardiopulmonary physiotherapists which may have influenced their level of expertise, multidisciplinary involvement, and patient outcomes.

Conclusions

Currently, there is suboptimal involvement and support for physiotherapists, particularly cardiopulmonary physiotherapists treating COVID-19 patients in the frontline in Nigeria.

Keywords

Physiotherapists, Physical Therapists, COVID-19, Qualitative research, Nigeria, Africa

Strengths and limitations of this study

- All consenting physiotherapists managing COVID-19 patients in the frontline in Nigeria were interviewed.
- A Public Involvement and Engagement consultation group informed the interpretation of results.
- Telephone interviews preclude the identification of non-verbal cues which might have influenced the interpretation of findings.
- Data saturation could not be established with eight frontline physiotherapists.
- The few frontline physiotherapists involved in this study (eight) reflects the very few physiotherapists overall (about twenty) engaged to serve in the frontline during the pandemic in Nigeria.

Introduction

Physiotherapy is recommended in the respiratory treatment and physical rehabilitation of patients with COVID-19¹. Physiotherapy may be indicated in the cases of COVID-19 patients who present with productive cough and are unable to clear secretions independently. High-risk patients are those with existing comorbidities associated with hypersecretion or ineffective cough (e.g., neuromuscular

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3 70 disease, respiratory disease, and cystic fibrosis), and they require physiotherapy. Physiotherapy is
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5 71 indicated for ventilated patients who show signs of inadequate airway clearance requiring airway
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7 72 clearance techniques. Patients with severe respiratory failure associated with COVID-19 may require
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9 73 prone position to optimise oxygenation, and this should be overseen by the physiotherapist. Patients
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11 74 with ICU-acquired weakness due to prolonged protective lung ventilation, sedation and use of
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13 75 neuromuscular blocking agents require initiation of early rehabilitation by the physiotherapist after
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15 76 the acute phase of respiratory distress ^{1,2}.
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20 77 Psychological distress is known to accompany infectious disease pandemics. This was present during
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22 78 the first severe acute respiratory syndrome (SARS) outbreak of 2002-2004. Up to 30% of healthcare
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24 79 workers in Toronto (Canada) experienced emotional distress, and 75% of healthcare workers in
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26 80 Taiwan and 21% of healthcare workers in Singapore, experienced psychiatric morbidity. Fear of
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28 81 contagion, feelings of stigmatization, loneliness, boredom, anger, anxiety, and a sense of uncertainty
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30 82 were commonly reported amongst healthcare workers³. A systematic review of quantitative studies
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32 83 on the impact of the current SARS Coronavirus 2 (SARS-CoV-2) pandemic on the mental health of
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34 84 healthcare workers in hospital settings found a high burden of mental health problems. These included
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36 85 depression (13.5%-44.7%), anxiety (12.3%-35.6%), acute stress reaction (5.2%-32.9%), post-traumatic
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38 86 stress disorder (7.4% 37.4%), insomnia (33.8%-36.1%), and occupational burnout (3.1%-43.0%).
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41 87 Healthcare workers with low social support had the worst psychological outcomes⁴. Italian
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43 88 physiotherapists were shown to be afraid of their families and colleagues getting infected with the
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45 89 SARS-CoV-2 virus, which aggravated stress and anxiety, which were ameliorated by messages of
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47 90 solidarity nationally and from around the world through provision of support and resources. Adequate
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49 91 preventive measures to protect patients, physiotherapists and other health professionals from
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51 92 infection, availability of remote working facilities such as smart-working, telemedicine systems, and
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53 93 adequate funding for services were some of the support and resources provided⁵.
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3 94 Limited qualitative studies have explored the experiences of frontline physiotherapists managing
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5 95 COVID-19 patients globally. Most qualitative studies have explored the experiences of physicians and
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8 96 nurses in China and Europe ⁶⁻⁹. More recent qualitative studies have included physiotherapists among
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10 97 other health professionals in the United Kingdom ¹⁰ or involved only physiotherapists in Spain ¹¹.
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12 98 Traumatizing and shocking experiences, limited material resources, feelings of a sense of duty despite
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14 99 significant personal risks, challenges managing a novel condition, resilience despite working
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16 100 challenges, and the need for support were common findings across these studies.
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20 101 No qualitative study of physiotherapists involved in COVID-19 management in the frontline existed in
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22 102 Nigeria at the time of this study, a gap that this study aimed to fill. This is relevant as respiratory
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24 103 physiotherapy procedures may be aerosol generating, with important implications during this
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26 104 pandemic ^{1,2}. This is more so in Nigeria where physiotherapists do not routinely have infectious disease
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29 105 expertise. Furthermore, due to the nature of the pandemic, and limited resources in Nigeria, frontline
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31 106 physiotherapists in Nigeria may need material and psychological support. It is known that enhancing
32
33 107 the psychological wellbeing of health care workers can enhance vigilance and the fight against
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35 108 emerging infectious diseases³. Providing material and psychological support to frontline
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37 109 physiotherapists can promote their health and safety which may be central for safe, effective and
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40 110 efficient patient management ⁷. In addition, frontline physiotherapists' experiences of managing
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42 111 COVID-19 patients in Nigeria may inform evidence-based public health policy, and clinical guidelines.
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44 112 The findings from this study can also guide the quality and direction of support provided to
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46 113 physiotherapists to ensure that they are effective in performing their duties. Finally, the results from
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48
49 114 this study can facilitate multidisciplinary teamwork in managing the pandemic which can positively
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51 115 influence COVID-19 outcomes in Nigeria. It has been recommended that the treatment of COVID-19
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53 116 be performed by the efforts of a multidisciplinary team. Team members need to have the same goal
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55 117 of ensuring that patients have improved signs and symptoms and can continue their daily activities
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58 118 independently. These goals can be achieved through efficient communication and collaboration
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60 119 amongst team members. Multidisciplinary efforts are vital in reducing the impact of the acute period

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of the disease, and treating, rehabilitating and reintegrating people after COVID-19^{5,12}. Unfortunately, the Nigerian health system is plagued by challenges arising from lack of collaborative practice among healthcare professionals, interprofessional conflict and rivalry¹³.

Therefore, the aim of this study was to explore the experiences of physiotherapists managing COVID-19 patients in the frontline in Nigeria. This study included a Public Involvement and Engagement consultation group to inform the interpretation of results.

Methods

Authors' background

All the authors were academic and/or clinical physiotherapists and included two women and three men. Their areas of specialty included community, cardiopulmonary, paediatric, and orthopaedic physiotherapy. All but one of the authors were working in Nigeria at the time of this study. None of the authors were working as frontline physiotherapists during the COVID-19 pandemic.

Patient and Public Involvement

A Public Involvement and Engagement consultation group was recruited to inform the interpretation of results. Cardiopulmonary physiotherapists (one from each state) who had been working in acute and critical care settings prior to the COVID-19 pandemic in Nigeria, in the states from which the frontline physiotherapists were recruited were engaged in the later stages of the data analysis to inform the interpretation of results. They provided information on the scope of physiotherapy practice and multidisciplinary functioning and relationships within acute and critical care settings in the states prior to the COVID-19 pandemic in Nigeria. They described the embedding of physiotherapists in the health care institutions before COVID-19, specifically in the ICU and wards of the hospitals.

141 Study design

142 Qualitative in-depth semi-structured individual telephone interviews were conducted. The study was
143 guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ)¹⁴ and the Standards
144 for Reporting Qualitative Research (SRQR)¹⁵.

145 Study setting

146 Nigeria has the largest population in Africa with over 200 million people in 2022. Nigeria has the
147 seventh largest population in the world with 36 states and one federal capital territory. Lagos state
148 currently has the largest population with 15.3 million people whilst Bayelsa state has the smallest
149 population with about 2.7 million people¹⁶. Despite the large population of Nigeria, there is a shortage
150 of physiotherapists due to unfavourable working conditions that lead to brain drain and the search of
151 greener pastures. Out of about 5,000 physiotherapists licensed to practise in Nigeria, only about 2,000
152 physiotherapists are currently practising in Nigeria. About 30% of physiotherapists licensed to practice
153 in Nigeria presently practice abroad. The remaining physiotherapists are currently unemployed¹⁷. The
154 World Physiotherapy website records an even lower number of 790 member physiotherapists
155 currently registered with the Nigeria Society of Physiotherapy¹⁸. The patient/clinician ratio for
156 physiotherapy in Nigeria is very poor with about 0.047 physiotherapists per 1000 of the population¹⁹.

157 Attempts were therefore made to recruit all frontline physiotherapists managing COVID-19 patients
158 in the ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in all the states
159 in Nigeria and the federal capital territory.

160 Sample size

161 Saturation is an ideal methodological principle in qualitative research which often indicates that
162 further data collection and/or analysis of qualitative data is no longer necessary. It is widely regarded
163 as the gold standard for determining adequate sample sizes in qualitative studies. However, there are
164 several and often contradicting conceptualisation of saturation in qualitative research. For instance,

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3 165 data saturation is believed to occur when further qualitative data does not produce new information.
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5 166 Thematic saturation is reached when no new themes are identified from subsequent data. Theoretical
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7 167 saturation is reached when the entire constructs that make up a theory are already characterised in
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10 168 the collected data. Data saturation is reportedly emphasized during qualitative data collection;
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12 169 thematic saturation is seen as important during data analysis; and theoretical saturation is
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14 170 underscored during sampling²⁰. We had aimed at recruiting an adequate number of physiotherapists
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16 171 to ensure that data saturation was reached. However, it was discovered during the field work, that
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19 172 only about 20 physiotherapists were involved in the frontline management of COVID-19 in Nigeria at
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21 173 the time of data collection. We therefore decided to take a pragmatic approach, envisaging that
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23 174 recruiting about half of that number would be a realistic expectation. Considering the very small
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25 175 targeted population, we took steps to achieve a sufficient depth and breadth of an understanding of
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28 176 the experiences of the consenting frontline physiotherapists, rather than reaching a state of
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30 177 'completeness' of data²⁰ as implied in a more traditional meaning of data saturation.
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33 178 **Participant recruitment**
34 179

36 180 There were only a few physiotherapists managing COVID-19 patients as frontline practitioners (ICU
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38 181 and COVID wards in hospitals, COVID isolation and treatment centres) in a few states in Nigeria.
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40 182 Therefore, this study attempted to recruit all consenting frontline physiotherapists involved in
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43 183 managing COVID-19 patients in government and private health facilities in Nigeria through purposive
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45 184 and snowball sampling. The physiotherapists were recruited through the national associations and
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47 185 physiotherapy professional groups in Nigeria including the Association of Clinical and Academic
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49 186 Physiotherapists of Nigeria (ACAPN), and the Nigeria Society of Physiotherapy (NSP). Invitation to
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52 187 participate in the study was also circulated through the social media platforms of physiotherapists
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54 188 practising in Nigeria. The eligibility criteria for inclusion in the study and the contact details of the lead
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56 189 author were included in the invitation letter. Instructions on how physiotherapists interested in
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59 190 participating in the study can contact the lead author were also documented. Interested participants
60

who contacted the lead author were then provided a written information sheet about the study via email. The contact details of the interested participants were collected with which their eligibility was determined. Eligible physiotherapists were those redeployed to specifically manage COVID-19 patients in the frontline in the ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in any of the states in Nigeria. Physiotherapists who had only treated patients who had coincidentally tested positive for the corona virus or patients who developed the COVID-19 illness during their routine physiotherapy treatment for another health condition were not eligible. Eligible physiotherapists were contacted to identify a convenient day and time for the telephone interviews. Written and verbal informed consent were obtained prior to the interviews.

Procedure for data collection

All interviews were conducted over the telephone, in English and audio recorded by the lead author between August 2020 and January 2021. A semi-structured interview guide (Appendix 1) collected sociodemographic characteristics and explored participants experiences of managing patients with COVID-19 as frontline health workers in health facilities in Nigeria. The questions were informed by the objective of this study, and published literature on the experiences of frontline health workers managing COVID-19 patients around the world. The final set of questions were discussed and subsequently agreed by the study team. The interview guide was flexible allowing for detailed exploration of experiences. The interviewer (lead author) engaged each participant in a dialogue such that initial questions were modified in line with the content of participant's responses. The interviewer then probed interesting and significant perceptions that appeared, giving each participant the maximum opportunity to tell their own story ^{21,22}.

Data management and analysis

Data collection was completed and anonymised before data analysis. Interviews were transcribed verbatim in English ²³ [CNI-C transcribed 2 transcripts; CA transcribed 3 transcripts; AA transcribed 2 transcripts; EA transcribed 1 transcript]. CNI-C then applied thematic analysis to the data using the

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3 216 qualitative data analysis software – Taguette (version 0.10.1) ²⁴. The following six steps of thematic
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5 217 analysis were undertaken: familiarisation with data, generating initial codes, searching for themes,
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7 218 reviewing potential themes, defining and naming themes, and producing the report ²³. For the first
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9 219 stage, CNI-C conducted all interviews. CNI-C, CA, AA, and EA listened to all audio files. CNI-C
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11 220 transcribed the interviews and read and reread the transcripts. These increased familiarisation and
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13 221 immersion in the data. An inductive approach to coding data was used²⁵. The lead author performed
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15 222 the initial coding of the whole data which was then discussed with the entire research team to ensure
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17 223 that the codes were grounded in the data. The initial codes were descriptive and provided the
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19 224 summary of each portion of data. The descriptive codes which had similar or related meanings were
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21 225 then grouped into interpretative or latent codes. These latent codes identified the meanings that lied
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23 226 beneath the descriptive codes linking them together. Themes were then constructed from the
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25 227 descriptive and interpretative codes in an iterative process. Coded data were reviewed for similarity
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27 228 and overlap. Codes which clustered around a similar issue were grouped together in one theme. The
28
29 229 relationship between themes and how they combine to produce an overall narrative were explored.
30
31 230 The initial themes were reviewed by the study team to ensure that they reflected the original data.
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33 231 Some themes were subsequently left as they were, others were collapsed together or split depending
34
35 232 on their coherence and underlying meaning. The resulting themes were then defined, named, and
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37 233 made specific by highlighting the unique meaning of each in line with the research objectives. Finally,
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39 234 the narrative report was produced with nuanced illustrations.
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46 235 **Results**

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49 236 **Sociodemographic characteristics of participants**

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51 237 Nine frontline physiotherapists initially indicated interest in participating in the study. One of them
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53 238 subsequently declined participation and did not provide consent and any data. Table 1 presents the
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55 239 sociodemographic characteristics of eight frontline physiotherapists in three states (Enugu, Lagos, and
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57 240 Oyo).
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Table 1: Sociodemographic characteristics of the frontline physiotherapists

AGE	Frequency	%
20-29	2	25.0
30-39	2	25.0
40-49	4	50.0
SEX		
Male	7	87.5
Female	1	12.5
EDUCATION		
Bachelor	5	62.5
MSc	2	25.0
MSc & MD Homeopathy	1	12.5
SPECIALISATION AREA		
Neurological physiotherapy	3	37.5
Orthopaedic physiotherapy	2	25.0
Cardiopulmonary physiotherapy	1	12.5
Sports physiotherapy	1	12.5
Rotation/general practice	1	12.5
YEARS OF PRACTICE		
0-4	1	12.5
5-9	3	37.5
10-14	2	25.0
15-19	2	25.0
DESIGNATION		
Deputy Director	1	12.5
Assistant director	3	37.5
Principal physiotherapist	1	12.5
Private practitioner	2	25.0
Intern physiotherapist	1	12.5
COVID-19 FACILITY		
Government hospital	5	62.5
Government owned isolation/treatment centre	1	12.5
Privately owned isolation/treatment centre	2	25.0

*Clinical physiotherapists' cadres in Nigeria: Director – the highest cadre of physiotherapy clinical practice in Nigeria and are usually appointed head of clinical physiotherapy departments. Deputy director – the second to the highest cadre of physiotherapy clinical practice in Nigeria and are usually appointed head of clinical physiotherapy specialty units or heads of clinical physiotherapy departments in the absence of a director of physiotherapy. Assistant director – the next lower rank to the deputy director and are usually specialist physiotherapists as the two more senior cadres and can be appointed heads of clinical physiotherapy specialty areas in the absence of a deputy director. Principal physiotherapist – senior level clinical physiotherapist specialising in a specific physiotherapy specialty area. Senior physiotherapist – first senior level clinical physiotherapy cadre involving rotatory postings through the different physiotherapy specialty areas. Corper physiotherapist – junior clinical physiotherapist undergoing rotatory postings through the different physiotherapy specialty areas and can be regarded as the second year of clinical experience/training post-graduation. Intern physiotherapist – junior clinical physiotherapist undergoing rotatory postings through the different physiotherapy specialty areas and can be regarded as the first year of clinical experience/training post-graduation.

Themes

Table 2 presents the themes produced from the thematic analysis.

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259 Table 2: Themes depicting the experiences of the frontline physiotherapists’

Themes	Becoming and remaining part of the COVID-19 team, or finally exiting the team	Problems with multidisciplinary teamwork	Broad ranging impact on physiotherapists’ personal and professional lives	Lack of support for perceived physiotherapy roles from prevention through to rehabilitation
Subthemes	The role of personal agency	Lack of teamwork in the ICU and COVID wards of government hospitals	Stigmatisation that is wide ranging	Physiotherapists’ roles in COVID-19 management are not fully harnessed in Nigeria
	Previous experience managing highly infectious diseases or being a cardiopulmonary physiotherapist	Discrimination of physiotherapists within COVID-19 teams	<i>Fear, anger</i> and having ‘ <i>off days</i> ’	‘ <i>On your own</i> ’: lack of material and psychological support
	Sense of professionalism	Better acceptance of physiotherapists in private non-governmental or state-owned non-hospital centres	Feelings of severe loss	Physiotherapists’ reliance on self-support and support of one another
	The breaking point: finally exiting the team			

260
261 1. Becoming and remaining part of the COVID-19 team, or finally exiting the team

262 *The role of personal agency*

263 The physiotherapists reported that their desire and efforts in joining the COVID-19 teams was driven
264 by their own personal motivations rather than any external motivation from the health system or the
265 government.
266 ‘...it was personal motivation; government did not motivate me in anyway... (P8).

These included the physiotherapists' innate ability to derive joy in improving patients' lives, wanting to 'do unto others as you would have them do unto you', and the love for adventure and challenges, serving mankind and making impact.

'...he [patient] still tells me "thank you for saving my life"...' (P4).

'I see it as a ministry...not just an occupation. It's something you do to touch lives (P5).

'Personally, I love challenges...' (P7).

'...I'd always looked for opportunities to serve...' (P3).

'...I'm offering something to the community (P6).

The physiotherapists' initial fear regarding the virus became replaced with a sense of purpose as they gained experience and confidence in their roles.

Previous experience managing highly infectious diseases or being a cardiopulmonary physiotherapist

The confidence and desire to be involved in managing COVID-19 patients appeared to be influenced at least in part by previous experience managing highly infectious and potentially fatal diseases.

'...being in neuromedicine... I've had to attend to patients with HIV...tuberculosis...hepatitis...

So...I just brought forward those ...knowledge and precautions...' (P1).

The cardiopulmonary physiotherapist also appeared to be highly motivated in becoming and remaining part of the COVID-19 team. This appeared to be due to his perception of his expertise in this field into which the pandemic predominantly falls in. He did not appear to be influenced by lack

1
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3 289 of remuneration or suboptimal provision of other resources. He regarded many COVID-19 related
4
5 290 complications as routine in his day-to-day physiotherapy services.
6
7
8 291 *'.....because my area of specialisation is cardio-respiratory... it's like, a calling to me... I decided*
9
10 292 *... whether they pay me or not, I will go and manage patients that have COVID...' (P6).*
11
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13 293
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15
16 294 One of the physiotherapists desired to support COVID-19 patients in their periods of pain, difficulties,
17
18 295 and hopelessness because of her previous first-hand experience of having life-threatening illnesses.
19
20
21 296 *'...I've had series of health conditions myself that got me thinking, will I ever be fine again? So,*
22
23 297 *I've had a first-hand experience of what it feels like to not have hope again. Just stay there and*
24
25 298 *be thinking like...let death just come already...' (P5).*
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31
32 300 **Sense of professionalism**

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34 301 All the interviewed physiotherapists stated not being initially invited to be part of the COVID-19 teams.
35
36
37 302 *'...initially we were not invited... it is actually the physiotherapist that will have to go and be*
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39 303 *telling them...like an advocacy...Even the presidential taskforce, does not even have*
40
41 304 *physiotherapy...' (P1).*
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47 306 They were motivated by the desire to publicise the important role of physiotherapy in the successful
48
49 307 management of COVID-19 as well as the competence and skills of physiotherapists.
50
51
52 308 *'to my knowledge, I was the only physiotherapist in the frontline in the country as at that time.*
53
54 309 *...they saw the consequences of my action...they are now more well informed than they used*
55
56 310 *to be...when the coordinator of the isolation centre is talking...he usually makes reference*
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to...physio, there was no time he's giving a progress report that he doesn't make reference to physiotherapy' (P2).

The efforts yielded some positive outcomes with reports of increasing people within the health system having information about the role of physiotherapy in COVID-19 management.

'...the national vice president had written to the NCDC, WHO...because I remember there was a circular from the ministry of health requesting for the training of health professionals, and they requested for physiotherapists...In this way, I think they are getting to know. The national body has also submitted our own guidelines...' (P1).

Half of the frontline physiotherapists appeared unfazed by their initial lack of recognition by other members of the COVID-19 teams, and believed that other health professionals, particularly medical doctors and nurses, would acknowledge the importance of physiotherapy when they observed the positive clinical effects of their actions on COVID-19 patients. These physiotherapists expressed confidence in the uniqueness of their knowledge and clinical expertise.

'...I just usually do not feel bad because I know what I know and I know nobody that is not a physiotherapist knows what I know and cannot do what I do. It was going to be a matter of them appraising their actions before me coming... I acted, I acted, and they saw the result of my actions. They saw the result of my actions, it gave me that feeling of satisfaction, that feeling of "yes, I'm the boss", this field I know it better... I was going to represent not just myself but the profession. I was going in to make a statement, but for me how best to make a statement than your action and the result of your action? I never felt threatened' (P2).

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335 ***The breaking point: finally exiting the team***

336 All the interviewed physiotherapists were disappointed that despite their increased advocacy about
337 physiotherapy, and perceived competence in discharging their clinical duties, their recognition and
338 respect within COVID-19 teams in Nigeria remained very poor. They believed that this was associated
339 with the teams being clinically and administratively led by medical doctors.

340 ‘...We made our clinical presentation about patient management and how we are supposed to
341 be an integral part of the team. We made some recommendations. Then, we met the head of
342 the infectious unit team outside, he told us point-blank that there is no provision for us...’ (P7).
343 ‘...So many things happened...that suggest we were not recognised. They [doctors] did not see
344 us as important. Why? Because it was the doctors that were coordinating everything. When
345 they were demanding for the names of those that should be paid, they requested forty names
346 from the hospital. The coordinator who is a consultant [physician] decided to put the names of
347 all the doctors and left out other health workers including physiotherapists, not even one of
348 them...’ (P8).

349
350 This led to three of the interviewed physiotherapists not wanting to remain part of the COVID-19 team
351 after the first COVID-19 wave in Nigeria. They refused to re-join the teams when the second wave
352 started in Nigeria.

353 ‘...I was so discouraged that I did not want to be part of the team again. So, when the second
354 wave started...I said I was not going back...’(P7).

355

356 **2. Problems with multidisciplinary teamwork**

357 All the interviewed physiotherapists expected a multidisciplinary approach to COVID-19 treatment in
358 Nigeria which recognised the role of each professional group, providing equal opportunities for health
359 professionals to bring on their expertise.

360 *'...a multidisciplinary team in which everyone will work together as one without anyone*
361 *thinking others are inferior...' (P6).*

363 However, the frontline physiotherapists felt that this was deliberately not observed by the medical
364 COVID-19 team leads in the government hospitals.

365 *'...they see a condition that should be referred to "A" they hold it because they have grudges*
366 *with "A". When they see a condition that should be referred to "C" they don't refer it because*
367 *they want to take all the glory...whereas nobody is an island, so why not do your part and refer*
368 *to the next person...(P3).*

370 ***Lack of teamwork in the ICU and COVID wards of government hospitals***

371 Multidisciplinary teamwork was reported as suboptimal in the government owned COVID-19
372 treatment and isolation centres and the government hospitals. All the interviewed frontline
373 physiotherapists viewed the nurses as complementary and supportive of physiotherapy roles,
374 although this appeared to be sometimes hampered by poor infrastructure such as irregular electricity
375 supply that impacted on the use of suctioning machines.

376 *'...Times when I needed to turn the patient and the patient was bigger than me, if I*
377 *don't get the porter, I could get the ICU nurse to help me out...' (P5).*

378 *'...most of the time suctioning is done by nurses in the wards...we may need the patient*
379 *to be suctioned during treatment. They do that for us. The only problem will be if there*
380 *is no light and there is no manual suctioning machine...(P1).*

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381 In contrast, the physiotherapists reported that most of the frontline doctors viewed other health
382 professionals including physiotherapists as inferior, disregarding them as team members.

383 *‘...so the nurse was like...what you did today, I was in awe... The doctor that was on duty was*
384 *like “don’t do that, don’t do that, he will asphyxiate...” (P3).*

385
386 Consequently, they believed that this led to doctors taking over the role of some multidisciplinary
387 team members in the government hospitals.

388 *‘...it is the house officers [medical interns] that do the nurse’s job...’ (P8).*

389 *‘...the nurses doubled as record officers. I did not actually see them work in the ward...(P7).*

390
391 In contrast, multidisciplinary teamwork was perceived as adequate by frontline physiotherapists in
392 the private COVID-19 treatment and isolation centres.

393 *‘...we had a very strong teamwork and team spirit, so it was really easy...’ (P5).*

394
395 ***Discrimination of physiotherapists within COVID-19 teams***

396 The six physiotherapists working in the government-owned COVID-19 health facilities felt that they
397 were treated and regarded less favourably than other health professionals in the COVID-19 teams by
398 the medical team leads.

399 They perceived that this manifested as lack of remuneration, protective equipment, and
400 accommodation.

401 *‘...the doctors are paid, and the physiotherapists are not being paid...’ (P6).*

402 *‘...Doctors are provided accommodation, we are not...’(P7).*

Three frontline physiotherapists reported not being informed, tested for COVID-19, or supported in any way when they were exposed to the virus in contrast to their medical colleagues. They believed that their discriminatory experiences were due to interprofessional rivalry.

'...interprofessional rivalry in our clime here...there is nothing the medical doctor will do without having a nurse ... They look at others as competing with them...' (P1).

Three frontline physiotherapists working primarily in the ICU and COVID wards of government hospitals and one frontline physiotherapist working in a private COVID isolation/treatment centre reported attempts to either completely remove physiotherapists from the COVID-19 teams by the government COVID-19 taskforce led by medical doctors, or to side-line physiotherapists by assigning their roles to other health professionals by the hospital medical team leads. Three physiotherapists reported feeling 'alone' and being the lone physiotherapist within their teams in contrast to other professionals. They described relying on their knowledge of medical presentations and clinical expertise to feel comfortable relating with the other health professionals.

'...I felt like a loner because I was the only physiotherapist. Nobody could really relate with me. I couldn't relate with most people. But because of the vast knowledge of my training, in my pre-clinicals we did everything that medical doctors would do...did. So, I could relate with the medical presentations better...' (P3).

Over half of the physiotherapists reported no longer seeking validation from the medical teams after learning to be contented with patients' appreciation of their positive clinical impact.

'...so I wasn't really seeking...the validation from them [medical team leads]...' (P4).

'...I am not here to impress anybody but to make my patient better...' (P6).

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3 426 **Better acceptance of physiotherapists in private non-governmental or state-owned non-hospital**
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5 427 **centres**
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8 428 In contrast to the experience of frontline physiotherapists engaged in government hospitals, the two
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10 429 physiotherapists in the private COVID centres felt accepted and recognised by the other team
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12 430 members. This was particularly by the medical team leads, after they had understood physiotherapy
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14 431 roles in COVID-19 management. The physiotherapists greatly appreciated this, and this seemed to
15
16 432 encourage and motivate them.
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20 433 *'...the medical colleagues ... they are a wonderful set of people... they were just treating me*
21
22 434 *like a King... that acceptance from them...gave me the psychological balance to focus on what*
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24 435 *I wanted to do...' (P3).*
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30 437 They regarded their acceptance by the medical team leads as more important than the provision of
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32 438 physiotherapy equipment which was often lacking. These two physiotherapists also reported no
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34 439 discrimination in terms of remuneration, provision of accommodation and other services provided to
35
36 440 other members of the COVID-19 team.
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40 441 *'...we were paid well...and they foot all the bills' (P3).*
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43 442 *'...they provided accommodation to us and the other team members...' (P5).*
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48 444 **3. Broad ranging impact on physiotherapists' personal and professional lives**
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51 445 **Stigmatisation that is wide ranging**
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54 446 All the physiotherapists reported being stigmatised by physiotherapy colleagues who were not
55
56 447 involved in the frontline management of COVID-19 patients, other health professional colleagues,
57
58 448 extended family members, friends, acquaintances, or the general public for fear of contracting the
59
60 449 virus from them.

450 *'Some people find it offensive when I try to say hi to them from a distance because I am*
451 *involved with treating COVID-19 patients...(P7).*

452 *'I had been hearing about stigma... I didn't really know the impact in the lives of people until I*
453 *was a front liner you know (sighs). I didn't tell anybody at home, I only told 2 of my siblings,*
454 *and one of them is a step sibling and he went ahead to mention it errr...in a very demeaning*
455 *way that err...I should not be allowed to do certain things that I actually wanted to do errrr...*
456 *I can't go into the details of that because they are my personal life...the stigmatization really*
457 *got to me for some days and I was like, is it a crime to actually be a health professional that is*
458 *working to actually salvage his generation...? I think they just took advantage of the*
459 *information I actually put at his door step and used it against me so I got to know that yes*
460 *stigma could be a very difficult thing for COVID-19 patients themselves to deal with, so that*
461 *made me actually know that if somebody is actually positive if he doesn't want to*
462 *communicate about it I can really relate with him because it is quite difficult what people can*
463 *do with stigmatisation...' (P3).*

465 Two of the physiotherapists who were stigmatised by extended family members, found succour with
466 some of their physiotherapy colleagues and friends.

467 *'...my colleague spoke with me; my friends just encouraged me...she really helped me... I should*
468 *not put my mind there... I'm doing something very honourable and venerable so I should not*
469 *allow anybody to get to my head...' (P3).*

471 Friends were the source of stigmatisation for two of the physiotherapists.

472 *'I mentioned it to my friend, since then my friend ran away from me because I was*
473 *working in the isolation centre...' (P8).*

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474 All the physiotherapists were stigmatised by the public.

475 *‘...But another challenge we had to deal with was the thought of coming out of the centre,*
476 *because the centre was located on the island. Even after you finished the work for the day and*
477 *you clean up... once you step out of the centre, people see that you are coming out of the*
478 *centre...everybody wants to avoid you...’ (P5).*

479
480 Stigmatisation was reported as the greatest challenge by one of the physiotherapists, and she desired
481 external support. For another physiotherapist, stigmatisation by the general public was through social
482 media (Twitter and Facebook). He had gone public about his infection with the virus in a bid to make
483 Nigerians understand the reality of COVID-19 and reduce the conspiracy theories regarding COVID-19
484 in Nigeria. He was rather treated with suspicion by the Nigerian public who thought that he was being
485 used by the government. The physiotherapist was consequently concerned about the possible impact
486 of this on his family members.

487 *‘...people said that the government paid me money...Then I worried about my parents...my*
488 *siblings...’ (P4).*

489
490 He therefore avoided informing his family about his involvement and had to rely on the acceptance
491 and support from professional colleagues and religious associates. Consequently, most of the frontline
492 physiotherapists avoided informing family members and friends about their involvement in the
493 frontline. Three of the physiotherapists reported relying on their immediate nuclear family as their
494 only source of support. Physiotherapy colleagues were the source of stigmatisation for two of the
495 frontline physiotherapists, which they found difficult, as they were also dealing with discrimination
496 within COVID-19 multidisciplinary teams.

497 *'...they did not provide us accommodation like the doctors and others...so when we get to the*
498 *department, we were being treated like foreigners, because everybody started avoiding us...'*
499 *(P7).*

501 ***Fear, anger and having 'off days'***

502 All the physiotherapists gained confidence with a clearer understanding of their roles in COVID-19
503 management. Their initial fear about the uncertainty surrounding COVID-19 was no longer present.

504 *'... Now, the fear, has been replaced with a sense of purpose...' (P7).*

506 All the interviewed frontline physiotherapists were afraid of getting infected with COVID-19 or dying
507 from it in the frontline.

508 *'...I mean I got COVID so... I was a bit scared...like...what's going to happen, am I gonna*
509 *die? (P4).*

511 One of the physiotherapists was not afraid of death as he assessed his risk as very low, although he
512 also sought spiritual sustenance.

513 *'...I prayed about it and then, I allowed God to take control...' (P6).*

515 Two of the physiotherapists had their fear reinforced through communication with or infection of
516 other COVID-19 team members. They attempted to reduce this fear by taking steps to minimise the
517 severity of a potential disease or by convincing themselves that the benefits of their involvement were
518 worth the risk. For two of the physiotherapists, the fear of getting infected was paralysing, and they

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3 519 described having ‘off days’ in relation to this, when they felt like being alone, and not being involved
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5 520 in activities they usually enjoyed.
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8 521 *‘...I was feeling scared, ...really really scary, and I was really really down...’ (P2).*
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14 523 They described critically analysing their risk of exposure and infection during such ‘off days’. Recovery
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16 524 from this debilitating fear was facilitated by convincing themselves that they were unlikely to have
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18 525 been exposed and infected or feeling that they were unlikely to experience a severe disease even
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20 526 when infected or remembering their patients with COVID-19 who were relying on them for survival.
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24 527 *‘...those that died ... are those having comorbidities, ... I didn’t think I fit into that category...’*
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26 528 *(P2).*
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29 529 *‘...the thought of the patients looking up to me made me want to get up...’ (P3).*
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34
35 531 One of the physiotherapists reported becoming angry at getting infected with the virus whilst working
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37 532 in the frontline. He blamed himself and regretted exposing himself and his family members to the
38
39 533 virus in a health system that did not even acknowledge or appreciate his role as a physiotherapist.
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41
42 534 *‘I was angry because I got it because I volunteered. In the western world, when*
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44 535 *volunteers go to an active environment, they are well protected. Coming into an*
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46 536 *environment where you are not even acknowledged...’ (P7).*
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52 538 All the physiotherapists felt that exposure to the virus and infection of some of their colleagues was
53
54 539 due to inadequate provision of personal protective equipment (PPE), and lack of support from both
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56 540 the health system and the government.
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541 The fear of infecting beloved family members had severe impact on physiotherapists' personal lives
542 and mental health. Family interaction and relationship became adversely affected as they stopped or
543 minimised contact with their close family members in an attempt to protect them.

544 *'...I would just get home and lock myself in the room... because of the fear...' (P5).*

545 *'...my wife, ...was pregnant, so we had to keep distance...' (P8).*

546

547 All the frontline physiotherapists were also dreading the possibility of losing their patients to
548 complications of COVID-19.

549 *'...Scary in terms of those in the ICU, on oxygen, with an SPO2 of below 80, nobody*
550 *wants a patient to die in his hands...' (P2).*

551 *'...as I am treating the patient, I will be like arrrh, this patient might not do well...(P6).*

552

553 ***Feelings of severe loss***

554 All the frontline physiotherapists expressed feelings of severe loss in terms of prolonged use of
555 uncomfortable and restrictive clothing; little or no physical contact or support from family and friends;
556 diminished social circle from reduced religious and other social activities; reduced physical activity;
557 adverse economic outcomes from loss of income from private practice; increased transportation
558 costs; and their patients dying of COVID-19 complications.

559 *'...having to wear a facemask every day, ...the back of my ears... are beginning to hurt (P4).*

560 *'...We have to protect ourselves with all these uncomfortable stuffs...' (P8).*

561 *'...limited my movement... Visiting friends has drastically reduced... churches were even locked*
562 *up...' (P1).*

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2
3 563 *'I had to avoid everybody, I had to avoid my wife, I had to avoid my kids, I had to be locked*
4
5 564 *up...' (P7).*
6
7
8 565 *'...we were accommodated ...so I had to change my environment totally, I changed my friends,*
9
10 566 *I changed everything...' (P3).*
11
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13 567 *'...affected my work... I'm a private practitioner and patients were not coming (P3).*
14
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16 568 *'...but when the pandemic came ...the cash flow was going down. There was financial strain...*
17
18 569 *The financial impact affected me personally' (P7).*
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21 570 *'...before, I could easily use a public transport...now I have to use Uber so it's even more*
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23 571 *costly...' (P5).*
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30 573 **4. Lack of support for perceived physiotherapy roles from prevention through to rehabilitation**

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32 574 All the frontline physiotherapists believed they were supposed to be involved in preventive efforts,
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34 575 therapeutic strategies, and long/short-term rehabilitation. Preventive efforts entailed primary
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36 576 prevention of infection and secondary prevention of severe disease. The frontline physiotherapists
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38 577 emphasized increasing physical fitness and reducing deconditioning from COVID-19 lockdowns.
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42 578 All but one of the frontline physiotherapists were not cardiopulmonary physiotherapists and they
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44 579 reported also fulfilling these roles.
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46
47 580 *'We all had to adapt as respiratory physiotherapists...' (P7).*
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53 582 This could be because many cardiopulmonary physiotherapists were not recommended to the
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55 583 frontline by their departments.
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584 *'...the department [physiotherapy] started choosing those who will go first ... I realised that I*
585 *wasn't among those who were going...'* (P6).

586

587 ***Physiotherapists' roles in COVID-19 management are not fully harnessed in Nigeria***

588 All the interviewed physiotherapists reported not being optimally involved in the therapeutic stages
589 of COVID-19 management. They also did not view themselves as adequately involved in preventive
590 efforts and in the rehabilitation and long-term management of the complications from the disease.

591 *'they have...post infection symptoms, a lot of them require physiotherapy...but we don't see*
592 *them'* (P1).

593

594 ***'On your own': lack of material and psychological support***

595 All but two frontline physiotherapists felt unsupported by the health system and the government.
596 They interpreted the lack of provision of PPE, lack of sanitation facilities, lack of remuneration and
597 allowances, and lack of health and life insurance in the case of infection, severe disease, and death, as
598 very discouraging.

599 *'..... we don't feel confident that if you get infected that you are not on your own...'* (P1).

600 *'...we don't have equipment, we don't have good funding, remuneration is zero...'* (P2).

601 *'The PPEs were not the best quality, ... I had no help; I had no support...I was not even paid...'*
602 *(P7).*

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604 ***Physiotherapists' reliance on self-support and support of one another***

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3 605 All six frontline physiotherapists in the government facilities reported learning to manage their
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5 606 expectations and depend only on themselves and fellow frontline physiotherapists. More senior
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7 607 physiotherapists were supporting and guiding the younger ones.
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9
10 608 *'...and you call them [junior physiotherapists] before they start their work. ...how was your*
11
12 609 *night? Ask about their health. ... And then try to explain to them what happened the previous*
13
14 610 *day. If they have some cases that they think they [junior physiotherapists] need special*
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16 611 *information about, we [senior physiotherapists] try to do that for them...' (P1).*
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23 613 **Discussion**

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26 614 **Statement of principal findings**
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29 616 The study explored the experiences of physiotherapists managing COVID-19 patients in the frontline
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31 617 in Nigeria. Results highlighted the physiotherapists' desire to be included in the COVID-19 teams in
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33 618 Nigeria seemed to be predominantly driven by their personal agencies, sense of professionalism,
34
35 619 previous experience managing highly infectious diseases, or being a cardiopulmonary physiotherapist.
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37 620 The frontline physiotherapists, particularly those in the government hospitals in Nigeria, felt that the
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39 621 road to becoming members of the COVID-19 team was arduous and came about through their own
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41 622 sustained advocacy. Even so, some of them exited the team, and were no longer involved in the
42
43 623 frontline out of frustration. This was because they could no longer cope with the perceived
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45 624 psychological, emotional, and financial impact of feeling discriminated against.
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51 625 **Interpretation within the context of the wider literature**

52 626 In contrast to the findings of this current study, the availability or lack thereof of PPE and COVID-19
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54 627 allowances were reported as a general problem affecting health workers in other studies in Nigeria
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56 628 ^{26,27}, and China ^{7,8} which did not include physiotherapists. Inadequate provision of PPE appeared to be
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58 629 affecting all health care professionals equally in studies that included physiotherapists in the UK and
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Spain^{10,11}. The lack of PPE was reported as a global problem affecting all world regions, especially lower income countries, and this contributed to the high burden of infections and deaths among healthcare workers²⁸.

Discriminatory experiences reported by the frontline physiotherapists in relation to managing COVID-19 patients as frontline healthcare workers is a novel finding in this study and has not been reported by other studies of COVID-19 patients. This finding aligns with a general lack of recognition of the role, scope and autonomy of physiotherapy by individuals, healthcare professionals especially physicians, government and the society globally, although this might be worse in low income settings^{29–32}. The frontline physiotherapists felt that they were not regarded as legitimate frontline members of the COVID-19 teams in Nigeria. The frontline physiotherapists in government hospitals expressed discrimination in relation to lack of remuneration, inadequate provision of PPE and accommodation plus little or no professional recognition by medical team leads. In contrast, the frontline physiotherapists in the private COVID isolation and treatment centres in Nigeria reported being recognised, respected, and supported by their medical team leads and other healthcare professionals in their teams. There were no reports of any form of discrimination from qualitative studies of physiotherapists who were practising in the United Kingdom and Spain^{10,11}. Discrimination of physiotherapists as frontline healthcare workers in the COVID-19 pandemic in Nigeria may be associated with the interprofessional rivalry rampant in the Nigerian health sector^{33–37}. The perceived or actual discrimination of other healthcare professionals by some medical team leads in Nigeria might hamper professional autonomy, professional identity, professional expertise and interprofessional harmony. Another reason for the discrimination of physiotherapists as frontline healthcare workers, particularly in the hospitals, could be because the COVID-19 teams in these facilities were led by infectious disease medical experts. These specialists may have had little or no clinical interaction with physiotherapists in the hospitals prior to the COVID-19 pandemic probably due to their limited involvement in acute care settings in Nigeria. It is therefore not surprising that the frontline physiotherapists felt that their roles in health promotion, disease prevention, treatment, and

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656 rehabilitation in relation to the pandemic were not adequately recognised and utilised. This might
657 have adverse implications for patients with COVID-19 in Nigeria.

658 The lack of multidisciplinary teamwork and the perceived discrimination of physiotherapists in the
659 frontline by the team leads might undermine an effective response to the COVID-19 pandemic in
660 Nigeria. Teamwork is required for optimal quality and safety of patients, the well-being of healthcare
661 professionals, and good financial outcomes for healthcare systems³⁸. Experts have reported that
662 scarce resources during pandemics can trigger biases against other professionals, with team leads
663 likely to protect only their own group³⁸. This can stifle communication between team members, and
664 the coordination of equipment and other materials across professions and organisations that are
665 critical in implementing an effective response to the COVID-19 pandemic³⁸. Generally, scarcity of
666 resources were identified as the most frequently experienced ethical issue by physiotherapists
667 globally³⁹. It is recommended therefore, that teamwork be characterised by effective coordination of
668 expertise across professional groups. Communication between professional groups should be
669 accurate, timely, cordial and reflective to enhance quality of care, and the financial output of health
670 care institutions³⁸. The Nigerian health system need to encourage clinical team leads that
671 acknowledge the diversity of multidisciplinary team members required in effectively and efficiently
672 managing the pandemic. Although hierarchy is a key feature of healthcare systems and fosters
673 coordination, it can also hamper inclusiveness³⁸. Inclusive behaviour from team leads can ensure that
674 members from other professional fields can feel psychologically safe to participate and collaborate
675 with multidisciplinary team members. Medical doctors lead the COVID-19 teams in Nigeria. In high
676 income countries, physiotherapists and other healthcare professionals have also successfully led
677 COVID-19 teams. The Nigerian healthcare system needs to adopt a multidisciplinary team orientation
678 with leadership that ensures the individual well-being of all health professionals within COVID-19
679 teams. This can be a great asset in the current and future infectious disease pandemics in Nigeria.

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3 680 It was surprising that only one of the interviewed frontline physiotherapists was a cardiopulmonary
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5 681 physiotherapist. Comparison with previous studies is impossible because they did not specify the
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7 682 physiotherapists' specialty areas ^{10,11}. The only cardiopulmonary physiotherapist in this study reported
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9 683 not being initially put forward to join the COVID-19 team. He reported making personal efforts that
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11 684 made him to be included later. Similarly, one of the cardiopulmonary physiotherapists in the Public
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13 685 Involvement and Engagement consultation group also reported not being invited to join the COVID-
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15 686 19 multidisciplinary team as a frontline physiotherapist. He reported that despite being the only
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17 687 cardiopulmonary physiotherapist in his hospital, his physiotherapy department recommended
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19 688 physiotherapists from other specialty areas to join the COVID-19 team. The reason for this finding is
20
21 689 unclear. However, the results of this study suggest that previous experience managing highly
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23 690 infectious diseases may have been the major factor influencing the recommendation from
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25 691 physiotherapy departments. This might explain why the highest number of the frontline
26
27 692 physiotherapists were neurological physiotherapists. In contrast, the private COVID-19 centres were
28
29 693 reported to have advertised for any available physiotherapists which may have led to none of their
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31 694 recruited frontline physiotherapists being cardiopulmonary physiotherapists. This finding could be
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33 695 related to the few cardiopulmonary physiotherapists currently working in Nigeria ⁴⁰. The involvement
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35 696 of mostly non-cardiopulmonary physiotherapists in the management of COVID-19 patients in the
36
37 697 frontline in Nigeria might have meant that the frontline physiotherapists did not demonstrate the level
38
39 698 of cardiopulmonary expertise that would have been the case for cardiopulmonary physiotherapists.
40
41 699 This might partly explain why the medical team leads underestimated the potential role of the
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43 700 frontline physiotherapists in COVID-19 management in Nigeria. However, the frontline
44
45 701 physiotherapists reported experiencing discrimination prior to being given any opportunity to
46
47 702 demonstrate their expertise. The reported interprofessional rivalry between medical doctors and
48
49 703 other healthcare professionals in Nigeria ³³⁻³⁵ may therefore be more important than the level of
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51 704 expertise of frontline physiotherapists in explaining the feelings of discrimination reported by the
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53 705 frontline physiotherapists.
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706 Reports of stigmatisation, fear, anger, feelings of severe loss, and lack of material and psychological
707 support were common findings in other studies⁶⁻⁹. Physiotherapists in this study had experiences of
708 stigmatisation from physiotherapy colleagues who were not engaged in the frontline, other health
709 professional colleagues, family members, friends, acquaintances, or the public. In contrast,
710 physiotherapists in other countries did not report stigmatisation from their neighbours, acquaintances
711 and the general public as physiotherapists were usually not perceived as being in regular contact with
712 potentially infectious patients in their routine duties in those countries^{10,11}. In Nigeria, the public often
713 do not understand the difference between physiotherapists and medical doctors which might at least
714 partly explain the stigmatisation of frontline physiotherapists by the public. There were no reports of
715 stigmatisation from physiotherapy colleagues, other health professional colleagues, family members
716 and friends in these studies^{10,11}. In contrast, physicians and nurses managing COVID-19 patients were
717 stigmatised by the general public in Iran⁴¹.

718 The fear experienced by frontline physiotherapists in Nigeria were in relation to the novelty of the
719 virus, fear of infection, having severe disease, dying from the disease, or transmitting it to their loved
720 ones. This aligns with findings from physiotherapists in other countries including the United Kingdom
721¹⁰ and Spain¹¹, and experiences of other health professionals including physicians and nurses in China
722^{7,8}, and Iran⁴¹. The frontline physiotherapists in Nigeria felt anger in response to getting infected whilst
723 performing a duty for which they perceived they were not acknowledged by the medical team leads
724 and the health system. Anger was experienced by frontline health workers in relation to the
725 perception of abandonment by the government and breaking of lockdown guidelines in the United
726 Kingdom¹⁰. Frontline physiotherapists in Spain felt anger at the roller coaster of other emotions they
727 were feeling including fear, sadness, illusion, rage, uncertainty, panic, worry, grief, loneliness, and
728 anxiety¹¹. Feelings of severe loss expressed in terms of restrictive uncomfortable clothing, loss of
729 physical contact with family and loved ones, loss of spiritual activities, reduced physical activity and
730 loss of income from private practice due to the lockdown align with findings from other studies<sup>6-
731^{8,10,11,41}</sup>. The complaints about the lack of provision of equipment, lack of emotional and psychological

732 support in the government hospitals, and feelings of abandonment reported by the frontline
733 physiotherapists in Nigeria have been felt elsewhere ¹⁰.

734 **Strengths and limitations**

735 One of the strengths of this study is its novelty. This is the first study of physiotherapists managing
736 patients with COVID-19 in the frontline in Nigeria. It is one of the very few studies globally that have
737 explored the experiences of physiotherapists as COVID-19 frontline healthcare workers. Another
738 strength of this study is that it was mainly conducted by local researchers with roots in the healthcare
739 system. Furthermore, this study was made robust by the active participation of a Public Involvement
740 and Engagement consultation group in the interpretation of results. Despite the strengths of this
741 study, it had limitations. Data saturation could not be established due to the limited number of
742 physiotherapists engaged in the frontline management of COVID-19 in Nigeria. Only eight of these
743 physiotherapists consented to participate from the pool of about 20 physiotherapists engaged in
744 managing COVID-19 patients in the frontline in Nigeria at the time of this study. Twenty
745 physiotherapists engaged as frontline COVID-19 health workers in a country of over 200 million people
746 may highlight an underutilisation of physiotherapists in Nigeria. Considering the very few numbers of
747 physiotherapists in Nigeria overall (as detailed in the methods section), and in the frontline, the
748 number of participants in this study appears realistic and reflects the Nigerian 'reality'. Another
749 potential limitation is that telephone interviews can prevent the recognition of non-verbal signals
750 which might have influenced the interpretation of findings. However, available evidence suggests that
751 there is no obvious difference between telephone and face to face interviews²¹. Telephone interviews
752 have the added advantage that they allow safe data collection during a highly infectious disease
753 pandemic and also afford some participants a greater freedom to discuss potentially difficult topics
754 without having a sense of loss of confidentiality²¹.

755 **Implications for policy, practice, and research**

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3 757 Increased advocacy for the involvement of physiotherapy (particularly cardiopulmonary
4
5 758 physiotherapy) is required in Nigeria. Public awareness regarding physiotherapy needs to be
6
7 759 intensified with physiotherapy associations in Nigeria having a significant role to play. This advocacy
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9
10 760 can be through mass media campaigns and community outreaches to educate the public, other
11
12 761 healthcare professionals, and the Nigerian government about the areas and scope of physiotherapy.
13
14 762 It is particularly important to provide enlightenment regarding the roles of cardiopulmonary
15
16 763 physiotherapy and other fields of physiotherapy in the management of patients with COVID-19. As
17
18 764 some medical specialists appeared to have had little or no clinical interaction with physiotherapists in
19
20 765 the hospitals prior to the COVID-19 pandemic, interprofessional education needs to be instituted at
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23 766 Nigerian medical schools at the undergraduate and postgraduate levels. This can foster
24
25 767 interprofessional respect and collaborative practice for patient-centred care. Frontline
26
27 768 physiotherapists involved in managing COVID-19 patients in Nigeria need to be better supported
28
29 769 materially and psychologically by medical administrators, medical team leads, and the Nigerian
30
31 770 government. However, physiotherapists in Nigeria may need to increase their capacity within the field
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33 771 of COVID-19 specifically, and within the area of cardiopulmonary practice generally. Healthcare
34
35 772 policies in Nigeria need to promote the dignity of all health professions, rather than the superiority of
36
37 773 one health profession to curb the pervasive interprofessional rivalry in the Nigerian health system.
38
39 774 Nigeria needs a more inclusive healthcare system with team leads that respect and engage other
40
41 775 frontline healthcare professionals for the effective management of the current pandemic and in
42
43 776 preparation for future pandemics. Useful approaches for physiotherapy advocacy have been
44
45 777 suggested. These include formation of physiotherapy task force for the quick improvement of the skills
46
47 778 and knowledge of physiotherapists where necessary, active involvement of physiotherapists in the
48
49 779 hospital triage, routine involvement of physiotherapists alongside medical and nursing staff in the
50
51 780 management of patients with respiratory failure following viral infection⁵. Other approaches include
52
53 781 multistakeholder engagement and support in strengthening rehabilitation. This can be through
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international organisations partnering with local organisations and initiatives, as well as with the country's government²⁹.

784

785 **Conclusions**

786 Physiotherapists managing COVID-19 patients in the frontline in Nigeria felt that they were not
787 regarded as legitimate members of the COVID-19 multidisciplinary teams by the medical team leads
788 and the health system. Their experiences of discrimination were made worse by experiences of
789 stigmatisation from extended family members, colleagues, and the public, coupled with perceived
790 material and psychological losses due to the COVID-19 pandemic.

791 **Declarations**

792 **Contributorship:** CNI-C conceived and designed the study. CNI-C collected the data. CNI-C analysed
793 and interpreted the data, supported by CA, AA, EA and RG. CNI-C drafted the initial manuscript
794 supported by RG. All authors contributed to a revised edition of the manuscript and CNI-C prepared
795 the final manuscript.

796 **Ethics and other permissions:** Ethical approval was obtained from the University of Nigeria Teaching
797 Hospital (NHREC/05/01/2008B-FWA00002458-1RB00002323-July 2020). Written information about
798 the objectives of the study was emailed to eligible participants who indicated interest in
799 participating. A written and verbal consent was obtained prior to interviewing.

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801 commercial or not-for-profit sectors.

802 **Competing interests:** No known conflict of interests.

803 **Acknowledgements:** Not applicable.

804 **Data sharing statement:** Data is available on request due to ethical restrictions. Requests for data
805 access may be made to the corresponding author (chinonso.chidobe@unn.edu.ng).

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References

1. Thomas P, Baldwin C, Bissett B, Boden I, Gosselink R, Granger CL, et al. Physiotherapy management for COVID-19 in the acute hospital setting: clinical practice recommendations. J Physiother. 2020;

2. Lazzeri M, Lanza A, Bellini R, Bellofiore A, Cecchetto S, Colombo A, et al. Respiratory physiotherapy in patients with COVID-19 infection in acute setting: a Position Paper of the Italian Association of Respiratory Physiotherapists (ARIR). Monaldi Arch Chest Dis. 2020;90(1).

3. Sim K, Chua HC. The psychological impact of SARS: a matter of heart and mind. Cmaj. 2004;170(5):811–2.

4. Sanghera J, Pattani N, Hashmi Y, Varley KF, Cheruvu MS, Bradley A, et al. The impact of SARS-CoV-2 on the mental health of healthcare workers in a hospital setting-A Systematic Review. J Occup Health. 2020;62(1):e12175.

5. Pedersini P, Corbellini C, Villafañe JH. Italian physical therapists’ response to the novel COVID-19 emergency. Phys Ther. 2020;100(7):1049–51.

6. Chuang E, Cuartas PA, Powell T, Gong MN. “We’re not ready, but i don’t think you’re ever ready.” Clinician perspectives on implementation of crisis standards of care. AJOB Empir Bioeth. 2020;11(3):148–59.

7. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. Lancet Glob Heal. 2020;

8. Yin X, Zeng L. A study on the psychological needs of nurses caring for patients with coronavirus disease 2019 from the perspective of the existence, relatedness, and growth theory. Int J Nurs Sci. 2020;7(2):157–60.

9. Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, et al. A qualitative study on the psychological

- 829 experience of caregivers of COVID-19 patients. *Am J Infect Control*. 2020;48(6):592–8.
- 830 10. Bennett P, Noble S, Johnston S, Jones D, Hunter R. COVID-19 confessions: a qualitative
831 exploration of healthcare workers experiences of working with COVID-19. *BMJ Open*.
832 2020;10(12):e043949.
- 833 11. Palacios-Ceña D, Fernández-de-Las-Peñas C, Florencio LL, de-la-Llave-Rincón AI, Palacios-Ceña
834 M. Emotional Experience and Feelings during First COVID-19 Outbreak Perceived by Physical
835 Therapists: A Qualitative Study in Madrid, Spain. *Int J Environ Res Public Health*.
836 2021;18(1):127.
- 837 12. Crăciun MD. Physiotherapeutic management for patients with Covid-19. In: *Biomedical
838 Engineering Tools for Management for Patients with COVID-19*. Elsevier; 2021. p. 149–62.
- 839 13. Mohammed ENA. Knowledge, causes, and experience of inter-professional conflict and rivalry
840 among healthcare professionals in Nigeria. *BMC Health Serv Res*. 2022;22(1):1–9.
- 841 14. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ):
842 a 32-item checklist for interviews and focus groups. *Int J Qual Heal care*. 2007;19(6):349–57.
- 843 15. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative
844 research: a synthesis of recommendations. *Acad Med*. 2014;89(9):1245–51.
- 845 16. National Population Commission. No Title [Internet]. 2022. Available from:
846 <https://nationalpopulation.gov.ng>
- 847 17. Balogun JA. The path to our destiny: The transitioning of physiotherapy in Nigeria from
848 occupation to a true profession. *J Niger Soc Physiother*. 2020;19(1):19–35.
- 849 18. World Physiotherapy. No Title [Internet]. 2022. Available from:
850 <https://world.physio/membership/nigeria>
- 851 19. Odumodu IJ, Olufunlayo TF, Ogunnowo BE, Kalu ME. Satisfaction with services among

- 852 attendees of physiotherapy outpatient clinics in tertiary hospitals in Lagos State. *J Patient*
- 853 *Exp.* 2020;7(4):468–78.
- 854 20. Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, et al. Saturation in qualitative
- 855 research: exploring its conceptualization and operationalization. *Qual Quant.*
- 856 2018;52(4):1893–907.
- 857 21. Smith JA, Spiers J, Simpson P, Nicholls AR. The psychological challenges of living with an
- 858 ileostomy: An interpretative phenomenological analysis. *Heal Psychol.* 2017;36(2):143.
- 859 22. Smith JA, Shinebourne P. Interpretative phenomenological analysis. American Psychological
- 860 Association; 2012.
- 861 23. Clarke V, Braun V. Thematic analysis. In: *Encyclopedia of critical psychology.* Springer; 2014.
- 862 p. 1947–52.
- 863 24. Rampin R, Rampin V, DeMott S. Taguette (Version 0.10.1). Zenodo. Zenodo; 2021.
- 864 25. Chandra Y, Shang L. Inductive coding. In: *Qualitative research using R: A systematic approach.*
- 865 Springer; 2019. p. 91–106.
- 866 26. Okediran JO, Ilesanmi OS, Fetuga AA, Onoh I, Afolabi AA, Ogunbode O, et al. The experiences
- 867 of healthcare workers during the COVID-19 crisis in Lagos, Nigeria: A qualitative study. *Germes.*
- 868 2020;10(4):356.
- 869 27. Uzosike TC, Dan-Jumbo A, Bob-Manuel M, Alali AA, Lawson DS. Care of the Covid-19 Patients:
- 870 Experiences of Health Workers in Rivers State Nigeria. *Int J Trop Dis Heal.* 2020;1–15.
- 871 28. Burki T. Global shortage of personal protective equipment. *Lancet Infect Dis.* 2020;20(7):785–
- 872 6.
- 873 29. Barth CA, Donovan-Hall M, Blake C, Jahan Akhtar N, Capo-Chichi JM, O’Sullivan C. A Focus
- 874 Group Study to Understand the Perspectives of Physiotherapists on Barriers and Facilitators

- 875 to Advancing Rehabilitation in Low-Resource and Conflict Settings. *Int J Environ Res Public*
 876 *Health*. 2021;18(22):12020.
- 877 30. Mamin FA, Hayes R. Physiotherapy in Bangladesh: inequality begets inequality. *Front Public*
 878 *Heal*. 2018;6:80.
- 879 31. Sturm A, Edwards I, Fryer CE, Roth R. (Almost) 50 shades of an ethical situation—
 880 international physiotherapists' experiences of everyday ethics: a qualitative analysis.
 881 *Physiother Theory Pract*. 2022;1–18.
- 882 32. Igwesi-Chidobe CN, Bishop A, Humphreys K, Hughes E, Protheroe J, Maddison J, et al.
 883 Implementing patient direct access to musculoskeletal physiotherapy in primary care: views
 884 of patients, general practitioners, physiotherapists and clinical commissioners in England.
 885 *Physiotherapy [Internet]*. 2021;111:31–9. Available from:
 886 <https://www.sciencedirect.com/science/article/pii/S0031940620303886>
- 887 33. Mayaki S, Stewart M. Teamwork, Professional Identities, Conflict, and Industrial Action in
 888 Nigerian Healthcare. *J Multidiscip Healthc [Internet]*. 2020;13:1223–34. Available from:
 889 <http://doi.org/10.2147/JMDH.S267116>
- 890 34. Salisu A, Hauwa I, Abubakar M, Ramla F, Mukhtar I, Nafisa N. Salisu AI, Hauwa IK, Abubakar
 891 MA, Ramla F, Mukhtar IG, Nafisa NY. Inter-professional rivalry in Nigerian health sector: a
 892 search for a potential beginning. *Kanem J Med Sci*. 2020;14(1):18–23.
- 893 35. Badejo O, Helen S, Seye A, Van Belle S. Confronting power in low places: historical analysis of
 894 medical dominance and role-boundary negotiation between health professions in Nigeria.
 895 *BMJ Glob Heal*. 2020;5(9):e003349.
- 896 36. Aregbeshola BS. Disharmony and unhealthy rivalry among health professionals in Nigeria.
 897 2018.
- 898 37. Alubo O, Hunduh V. Alubo O, Hunduh V. Medical dominance and resistance in Nigeria's

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899 health care system. *Int J Heal Serv.* 2017;47(4):778–94.

900 38. Mayo AT. Teamwork in a pandemic: insights from management research. *BMJ Lead.*

901 2020;leader-2020.

902 39. Fryer C, Sturm A, Roth R, Edwards I. Scarcity of resources and inequity in access are

903 frequently reported ethical issues for physiotherapists internationally: an observational

904 study. *BMC Med Ethics.* 2021;22(1):1–16.

905 40. Oke K, Birabi B, Oghumu S. Physiotherapists’ level of involvement in patterns of acute care

906 cardiorespiratory physiotherapy practice in Nigeria. *Fizjoterapia Pol.* 2015;15(2):110–8.

907 41. Alizadeh A, Khankeh HR, Barati M, Ahmadi Y, Hadian A, Azizi M. Psychological distress among

908 Iranian health-care providers exposed to coronavirus disease 2019 (COVID-19): a qualitative

909 study. *BMC Psychiatry.* 2020;20(1):1–10.

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Appendix 1: interview schedule

1. Demographic information

Age

Gender

Education

Specialisation

Years of practice

2. Could you tell me about becoming a physiotherapist?

3. What do you like most about being a physiotherapist?

4. Could you tell me what led to you becoming involved in caring for patients with COVID-19?

5. Could you tell me about the activities you undertake in working with patients with COVID-19?

Probe for knowledge; skills; social/professional role and identity; beliefs about capabilities; beliefs about consequences; environmental factors.

6. What do you think about the way COVID-19 is being managed in your health facility?

Prompts: What are the expectations on you managing COVID-19? What are the facilitators or barriers to your treatment of COVID-19?

7. How has it been for you since COVID-19 started in Nigeria?

Prompts: What are the differences between work before the pandemic and during the pandemic? What are the changes and challenges in your work since COVID-19?

8. What is it like for you to care for COVID-19 patients?

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Prompts: How does it make you feel? What were your feelings before the pandemic, during the first day of COVID-19 treatment and currently?

9. How have you coped with the changes and challenges in your work since COVID-19?

Prompt: Has anything helped or made things more difficult? What is the available support and what support do you still need?

10. Can you tell me a bit about the relationship between your work and personal life?

Prompts: What was it like before COVID-19? What is it like now?

11. Is there anything else you want to tell me that I haven't given you the chance to talk about?

Probe for insights they may have had from this pandemic.

Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1/1-3
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	1-2/6-35

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	2-3/37-68
Purpose or research question - Purpose of the study and specific objectives or questions	3/69-71

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	3-7/86-166
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	3-4/73-77
Context - Setting/site and salient contextual factors; rationale**	4/90-93
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	4-6/94-132
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	26/669-672
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	6/133-144

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	6, supplementary file 1/133-144, supplementary file 1
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	7/168-175
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	6-7/146-166
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	6-7/145-166
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	7/152-161

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	7-20/179-523
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	7-20/184-527

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	21-26/529-663
Limitations - Trustworthiness and limitations of findings	25/643-648

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	26/675
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	26/673-674

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

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Experiences of physiotherapists involved in frontline management of patients with COVID-19 in Nigeria: a qualitative study

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Running head: Frontline physiotherapists managing COVID-19 in Nigeria

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Abstract

Objectives

Evidence-based guidelines recommend physiotherapy for respiratory treatment and physical rehabilitation of patients with COVID-19. It is unclear to what extent physiotherapy services are utilised in the frontline management of COVID-19 in Nigeria. This study aimed to explore the experiences of frontline physiotherapists managing patients with COVID-19 in Nigeria.

Design

Qualitative interview-based study.

Setting

ICU and hospital COVID wards, COVID-isolation and treatment centres in Nigeria, between August 2020 and January 2021.

Participants

Eight out of 20 physiotherapists managing patients with COVID-19 in the frontline were recruited using purposive and snowball sampling.

Methods

Qualitative in-depth semi-structured telephone interviews of all consenting physiotherapists managing patients with COVID-19 in the frontline in Nigeria were conducted and transcribed verbatim. Transcripts were thematically analysed.

Results

Eight frontline physiotherapists (three neurological physiotherapists, two orthopaedic physiotherapists, one cardiopulmonary physiotherapist, one sports physiotherapist and one rotational physiotherapist) provided consent and data for this study. Four themes and thirteen subthemes were generated illustrating discriminatory experiences of frontline physiotherapists, particularly from COVID-19 team leads; lack of multidisciplinary teamwork within COVID-19 teams; wide ranging stigmatisation from extended family members, colleagues, friends, and the general public; material and psychosocial personal losses; lack of system support; and suboptimal utilisation of physiotherapy in the management of COVID-19 in Nigeria. Personal agency, sense of

professionalism, previous experience managing highly infectious diseases, and being a cardiopulmonary physiotherapist were the factors that made the frontline physiotherapists to become involved in managing patients with COVID-19. However, discriminatory experiences made some of these physiotherapists to stop being involved in the management of patients with COVID-19 in the frontline. Most frontline physiotherapists were not cardiopulmonary physiotherapists which may have influenced their level of expertise, multidisciplinary involvement, and patient outcomes.

Conclusions

There is suboptimal involvement and support for physiotherapists, particularly cardiopulmonary physiotherapists treating patients with COVID-19 in the frontline in Nigeria.

Keywords

Physiotherapists, Physical Therapists, COVID-19, Qualitative research, Nigeria, Africa

Strengths and limitations of this study

- All consenting physiotherapists managing patients with COVID-19 in the frontline in Nigeria were interviewed.
- A Public Involvement and Engagement consultation group informed the interpretation of results.
- Telephone interviews preclude the identification of non-verbal cues which might have influenced the interpretation of findings.
- Data saturation could not be established with eight frontline physiotherapists.
- The few frontline physiotherapists involved in this study (eight) reflects the very few physiotherapists overall (about 20) engaged to serve in the frontline during the pandemic in Nigeria.

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Introduction

Physiotherapy is recommended in the respiratory treatment and physical rehabilitation of patients with COVID-19 ¹. Physiotherapy may be indicated in the cases of patients with COVID-19 who present with productive cough and are unable to clear secretions independently. High-risk patients are those with existing comorbidities associated with hypersecretion or ineffective cough (e.g., neuromuscular disease, respiratory disease, and cystic fibrosis), and they require physiotherapy. Physiotherapy is indicated for ventilated patients who show signs of inadequate airway clearance requiring airway clearance techniques. Patients with severe respiratory failure associated with COVID-19 may require prone position to optimise oxygenation, and this should be overseen by the physiotherapist. Patients with ICU-acquired weakness due to prolonged protective lung ventilation, sedation and use of neuromuscular blocking agents require initiation of early rehabilitation by the physiotherapist after the acute phase of respiratory distress ^{1,2}.

Psychological distress is known to accompany infectious disease pandemics. This was present during the first severe acute respiratory syndrome (SARS) outbreak of 2002-2004. Up to 75% of healthcare workers in Toronto (Canada) experienced emotional distress, and 75% of healthcare workers in Taiwan and 21% of healthcare workers in Singapore, experienced psychiatric morbidity. Fear of contagion, feelings of stigmatization, loneliness, boredom, anger, anxiety, and a sense of uncertainty were commonly reported amongst healthcare workers³. A systematic review of quantitative studies on the impact of the current SARS Coronavirus 2 (SARS-CoV-2) pandemic on the mental health of healthcare workers in hospital settings found a high burden of mental health problems. These included depression (13.5%-44.7%), anxiety (12.3%-35.6%), acute stress reaction (5.2%-32.9%), post-traumatic stress disorder (7.4% 37.4%), insomnia (33.8%-36.1%), and occupational burnout (3.1%-43.0%). Both frontline healthcare workers and other healthcare workers with low social support had the worst psychological outcomes⁴. Italian physiotherapists were shown to be afraid of their families and colleagues getting infected with the SARS-CoV-2 virus, which aggravated stress and anxiety, which

95 were ameliorated by messages of solidarity nationally and from around the world through provision
96 of support and resources. Adequate preventive measures to protect patients, physiotherapists and
97 other health professionals from infection, availability of remote working facilities such as smart-
98 working, telemedicine systems, and adequate funding for services were some of the support and
99 resources provided⁵.

100 Limited qualitative studies have explored the experiences of frontline physiotherapists managing
101 patients with COVID-19 globally. Most qualitative studies have explored the experiences of physicians
102 and nurses in China and Europe ⁶⁻⁹. More recent qualitative studies have included physiotherapists
103 among other health professionals in the United Kingdom ¹⁰ or involved only physiotherapists in Spain
104 ¹¹. Traumatizing and shocking experiences, limited material resources, feelings of a sense of duty
105 despite significant personal risks, challenges managing a novel condition, resilience despite working
106 challenges, and the need for support were common findings across these studies.

107 No qualitative study of physiotherapists involved in COVID-19 management in the frontline existed in
108 Nigeria at the time of this study, a gap that this study aimed to fill. This is relevant as respiratory
109 physiotherapy procedures may be aerosol generating, with important implications during this
110 pandemic ^{1,2}. This is more so in Nigeria where physiotherapists do not routinely have infectious disease
111 expertise. Furthermore, due to the nature of the pandemic, and limited resources in Nigeria, frontline
112 physiotherapists in Nigeria may need material and psychological support. It is known that enhancing
113 the psychological wellbeing of health care workers can enhance vigilance and the fight against
114 emerging infectious diseases³. Providing material and psychological support to frontline
115 physiotherapists can promote their health and safety which may be central for safe, effective and
116 efficient patient management ⁷. In addition, frontline physiotherapists' experiences of managing
117 patients with COVID-19 in Nigeria may inform evidence-based public health policy, and clinical
118 guidelines. The findings from this study can also guide the quality and direction of support provided
119 to physiotherapists to ensure that they are effective in performing their duties. Finally, the results

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3 120 from this study can facilitate multidisciplinary teamwork in managing the pandemic which can
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5 121 positively influence COVID-19 outcomes in Nigeria. It has been recommended that the treatment of
6
7 122 COVID-19 be performed by the efforts of a multidisciplinary team. Team members need to have the
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10 123 same goal of ensuring that patients have improved signs and symptoms and can continue their daily
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12 124 activities independently. These goals can be achieved through efficient communication and
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14 125 collaboration amongst team members. Multidisciplinary efforts are vital in reducing the impact of the
15
16 126 acute period of the disease, and treating, rehabilitating and reintegrating people after COVID-19^{5,12}.
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19 127 Unfortunately, the Nigerian health system is plagued by challenges arising from lack of collaborative
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21 128 practice among healthcare professionals, interprofessional conflict and rivalry¹³.
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25 129 Therefore, the aim of this study was to explore the experiences of physiotherapists managing patients
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27 130 with COVID-19 in the frontline in Nigeria. This study included a Public Involvement and Engagement
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29 131 consultation group to inform the interpretation of results.
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33 132 **Methods**

36 133 **Authors' background**

37 134 All the authors were academic and/or clinical physiotherapists and included two women and three
38
39 135 men. Their areas of specialty included community, cardiopulmonary, paediatric, and orthopaedic
40
41
42 136 physiotherapy. All but one of the authors were working in Nigeria at the time of this study. None of
43
44 137 the authors were working as frontline physiotherapists during the COVID-19 pandemic.
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47 138 **Patient and public involvement**

48 139 A Public Involvement and Engagement consultation group was recruited to inform the interpretation
49
50 140 of results. Cardiopulmonary physiotherapists (one from each state) who had been working in acute
51
52 141 and critical care settings prior to the COVID-19 pandemic in Nigeria, in the states from which the
53
54 142 frontline physiotherapists were recruited were engaged in the later stages of the data analysis to
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56 143 inform the interpretation of results. They provided information on the scope of physiotherapy practice
57
58 144 and multidisciplinary functioning and relationships within acute and critical care settings in the states
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145 prior to the COVID-19 pandemic in Nigeria. They described the embedding of physiotherapists in the
146 health care institutions before COVID-19, specifically in the ICU and wards of the hospitals.

147 **Study design**

148 Qualitative in-depth semi-structured individual telephone interviews were conducted. The study was
149 guided by the Consolidated Criteria for Reporting Qualitative Research (COREQ) ¹⁴ and the Standards
150 for Reporting Qualitative Research (SRQR) ¹⁵.

151 **Study setting**

152 Nigeria has the largest population in Africa with over 200 million people in 2022. Nigeria has the
153 seventh largest population in the world with 36 states and one federal capital territory. Lagos state
154 currently has the largest population with 15.3 million people whilst Bayelsa state has the smallest
155 population with about 2.7 million people¹⁶. Despite the large population of Nigeria, there is a shortage
156 of physiotherapists due to unfavourable working conditions that lead to brain drain and the search of
157 greener pastures. Out of about 5,000 physiotherapists licensed to practise in Nigeria, only about 2,000
158 physiotherapists are currently practising in Nigeria. About 30% of physiotherapists licensed to practice
159 in Nigeria presently practice abroad. The remaining physiotherapists are currently unemployed¹⁷. The
160 World Physiotherapy website records an even lower number of 790 member physiotherapists
161 currently registered with the Nigeria Society of Physiotherapy¹⁸. The patient/clinician ratio for
162 physiotherapy in Nigeria is very poor with about 0.047 physiotherapists per 1,000 of the population¹⁹.

163 Attempts were therefore made to recruit all frontline physiotherapists managing patients with COVID-
164 19 in the ICU and COVID wards in hospitals, and COVID-isolation and treatment centres in all the states
165 in Nigeria and the federal capital territory.

166 **Sample size**

167 Saturation is an ideal methodological principle in qualitative research which often indicates that
168 further data collection and/or analysis of qualitative data is no longer necessary. It is widely regarded

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3 169 as the gold standard for determining adequate sample sizes in qualitative studies. However, there are
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5 170 several and often contradicting conceptualisation of saturation in qualitative research. For instance,
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7 171 data saturation is believed to occur when further qualitative data does not produce new information.
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10 172 Thematic saturation is reached when no new themes are identified from subsequent data. Theoretical
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12 173 saturation is reached when the entire constructs that make up a theory are already characterised in
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14 174 the collected data. Data saturation is reportedly emphasized during qualitative data collection;
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16 175 thematic saturation is seen as important during data analysis; and theoretical saturation is
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18 176 underscored during sampling²⁰. We had aimed at recruiting an adequate number of physiotherapists
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20 177 to ensure that data saturation was reached. However, it was discovered during the field work, that
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23 178 only about 20 physiotherapists were involved in the frontline management of COVID-19 in Nigeria at
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25 179 the time of data collection. We therefore decided to take a pragmatic approach, envisaging that
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27 180 recruiting about half of that number would be a realistic expectation. Considering the very small
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29 181 targeted population, we took steps to achieve a sufficient depth and breadth of an understanding of
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31 182 the experiences of the consenting frontline physiotherapists, rather than reaching a state of
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33 183 'completeness' of data²⁰ as implied in a more traditional meaning of data saturation.
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37 **Participant recruitment**
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41 186 There were only a few physiotherapists managing patients with COVID-19 as frontline practitioners
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43 187 (ICU and COVID wards in hospitals, COVID isolation and treatment centres) in a few states in Nigeria.
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45 188 Therefore, this study attempted to recruit all consenting frontline physiotherapists involved in
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47 189 managing patients with COVID-19 in government and private health facilities in Nigeria through
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49 190 purposive and snowball sampling. The physiotherapists were recruited through the national
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51 191 associations and physiotherapy professional groups in Nigeria including the Association of Clinical and
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53 192 Academic Physiotherapists of Nigeria (ACAPN), and the Nigeria Society of Physiotherapy (NSP).
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55 193 Invitation to participate in the study was also circulated through the social media platforms of
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57 194 physiotherapists practising in Nigeria. The eligibility criteria for inclusion in the study and the contact
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3 195 details of the lead author were included in the invitation letter. Instructions on how physiotherapists
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5 196 interested in participating in the study can contact the lead author were also documented. Interested
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8 197 participants who contacted the lead author were then provided a written information sheet about the
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10 198 study via email. The contact details of the interested participants were collected with which their
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12 199 eligibility was determined. Eligible physiotherapists were those redeployed to specifically manage
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14 200 patients with COVID-19 in the frontline in the ICU and COVID wards in hospitals, and COVID-isolation
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16 201 and treatment centres in any of the states in Nigeria. Physiotherapists who had only treated patients
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18 202 who had coincidentally tested positive for the corona virus or patients who developed the COVID-19
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20 203 illness during their routine physiotherapy treatment for another health condition were not eligible.
21
22 204 Eligible physiotherapists were contacted to identify a convenient day and time for the telephone
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25 205 interviews. Written and verbal informed consent were obtained prior to the interviews.
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28 206 **Procedure for data collection**

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31 207 All interviews were conducted over the telephone, in English and audio recorded by the lead author
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33 208 between August 2020 and January 2021. A semi-structured interview guide (Appendix 1) collected
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35 209 sociodemographic characteristics and explored participants' experiences of managing patients with
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37 210 COVID-19 as frontline health workers in health facilities in Nigeria. The questions were informed by
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39 211 the objective of this study, and published literature on the experiences of frontline health workers
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41 212 managing patients with COVID-19 around the world. The final set of questions were discussed and
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43 213 subsequently agreed by the study team. The interview guide was flexible allowing for detailed
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45 214 exploration of experiences. The interviewer (lead author) engaged each participant in a dialogue such
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47 215 that initial questions were modified in line with the content of participant's responses. The interviewer
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49 216 then probed interesting and significant perceptions that appeared, giving each participant the
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51 217 maximum opportunity to tell their own story ^{21,22}.
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218 **Data management and analysis**

219 Data collection was completed and anonymised before data analysis. Interviews were transcribed
220 verbatim in English ²³ [CNI-C transcribed 2 transcripts; CA transcribed 3 transcripts; AA transcribed 2
221 transcripts; EA transcribed 1 transcript]. CNI-C then applied thematic analysis to the data using the
222 qualitative data analysis software – Taguette (version 0.10.1) ²⁴. The following six steps of thematic
223 analysis were undertaken: familiarisation with data, generating initial codes, searching for themes,
224 reviewing potential themes, defining and naming themes, and producing the report ²³. For the first
225 stage, CNI-C conducted all interviews. CNI-C, CA, AA, and EA listened to all audio files. CNI-C
226 transcribed the interviews and read and reread the transcripts. These increased familiarisation and
227 immersion in the data. An inductive approach to coding data was used²⁵. The lead author performed
228 the initial coding of the whole data which was then discussed with the entire research team to ensure
229 that the codes were grounded in the data. The initial codes were descriptive and provided the
230 summary of each portion of data. The descriptive codes which had similar or related meanings were
231 then grouped into interpretative or latent codes. These latent codes identified the meanings that lied
232 beneath the descriptive codes linking them together. Themes were then constructed from the
233 descriptive and interpretative codes in an iterative process. Coded data were reviewed for similarity
234 and overlap. Codes which clustered around a similar issue were grouped together in one theme. The
235 relationship between themes and how they combine to produce an overall narrative were explored.
236 The initial themes were reviewed by the study team to ensure that they reflected the original data.
237 Some themes were subsequently left as they were, others were collapsed together or split depending
238 on their coherence and underlying meaning. The resulting themes were then defined, named, and
239 made specific by highlighting the unique meaning of each in line with the research objectives. Finally,
240 the narrative report was produced with nuanced illustrations.

Results

Sociodemographic characteristics of participants

Nine frontline physiotherapists initially indicated interest in participating in the study. One of them subsequently declined participation and did not provide consent and any data. Table 1 presents the sociodemographic characteristics of eight frontline physiotherapists in three states (Enugu, Lagos, and Oyo).

Table 1: Sociodemographic characteristics of the frontline physiotherapists

AGE	Frequency	%
20-29	2	25.0
30-39	2	25.0
40-49	4	50.0
SEX		
Male	7	87.5
Female	1	12.5
EDUCATION		
Bachelor	5	62.5
MSc	2	25.0
MSc & MD Homeopathy	1	12.5
SPECIALISATION AREA		
Neurological physiotherapy	3	37.5
Orthopaedic physiotherapy	2	25.0
Cardiopulmonary physiotherapy	1	12.5
Sports physiotherapy	1	12.5
Rotation/general practice	1	12.5
YEARS OF PRACTICE		
0-4	1	12.5
5-9	3	37.5
10-14	2	25.0
15-19	2	25.0
DESIGNATION		
Deputy Director	1	12.5
Assistant director	3	37.5
Principal physiotherapist	1	12.5
Private practitioner	2	25.0
Intern physiotherapist	1	12.5
COVID-19 FACILITY		
Government hospital	5	62.5
Government owned isolation/treatment centre	1	12.5
Privately owned isolation/treatment centre	2	25.0

*Clinical physiotherapists' cadres in Nigeria: Director – the highest cadre of physiotherapy clinical practice in Nigeria and are usually appointed head of clinical physiotherapy departments. Deputy director – the second to the highest cadre of physiotherapy clinical practice in Nigeria and are usually appointed head of clinical physiotherapy specialty units or heads of clinical physiotherapy departments in the absence of a director of physiotherapy. Assistant director – the next lower rank to the deputy director and are usually specialist physiotherapists as the two more senior cadres and can be appointed heads of clinical physiotherapy specialty areas in the absence of a deputy director. Principal physiotherapist – senior level clinical physiotherapist specialising in a specific physiotherapy specialty area. Senior physiotherapist – first senior level clinical physiotherapy cadre involving rotatory postings through the different physiotherapy specialty areas. Corper physiotherapist – junior clinical physiotherapist undergoing rotatory postings through the different physiotherapy specialty areas and can be regarded as the second year of clinical experience/training post-graduation. Intern physiotherapist – junior clinical

physiotherapist undergoing rotatory postings through the different physiotherapy specialty areas and can be regarded as the first year of clinical experience/training post-graduation.

Themes

Table 2 presents the themes produced from the thematic analysis.

Table 2: Themes depicting the experiences of the frontline physiotherapists

Themes	Becoming and remaining part of the COVID-19 team, or finally exiting the team	Problems with multidisciplinary teamwork	Broad ranging impact on physiotherapists' personal and professional lives	Lack of support for perceived physiotherapy roles from prevention through to rehabilitation
Subthemes	The role of personal agency	Lack of teamwork in the ICU and COVID wards of government hospitals	Stigmatisation that is wide ranging	Physiotherapists' roles in COVID-19 management are not fully harnessed in Nigeria
	Previous experience managing highly infectious diseases or being a cardiopulmonary physiotherapist	Discrimination of physiotherapists within COVID-19 teams	<i>Fear, anger</i> and having <i>'off days'</i>	<i>'On your own'</i> : lack of material and psychological support
	Sense of professionalism	Better acceptance of physiotherapists in private non-governmental or state-owned non-hospital centres	Feelings of severe loss	Physiotherapists' reliance on self-support and support of one another
	The breaking point: finally exiting the team			

1. Becoming and remaining part of the COVID-19 team, or finally exiting the team

The role of personal agency

The physiotherapists reported that their desire and efforts in joining the COVID-19 teams was driven by their own personal motivations rather than any external motivation from the health system or the government.

'...it was personal motivation; government did not motivate me in anyway... (P8).

These included the physiotherapists' innate ability to derive joy in improving patients' lives, wanting to 'do unto others as you would have them do unto you', and the love for adventure and challenges, serving mankind and making impact.

'...he [patient] still tells me "thank you for saving my life"...' (P4).

'I see it as a ministry...not just an occupation. It's something you do to touch lives (P5).

'Personally, I love challenges...' (P7).

'...I'd always looked for opportunities to serve...' (P3).

'...I'm offering something to the community (P6).

The physiotherapists' initial fear regarding the virus became replaced with a sense of purpose as they gained experience and confidence in their roles.

Previous experience managing highly infectious diseases or being a cardiopulmonary physiotherapist

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287 The confidence and desire to be involved in managing patients with COVID-19 appeared to be
288 influenced at least in part by previous experience managing highly infectious and potentially fatal
289 diseases.

290 *'...being in neuromedicine... I've had to attend to patients with HIV...tuberculosis...hepatitis...
291 So...I just brought forward those ...knowledge and precautions...' (P1).*

292
293 The cardiopulmonary physiotherapist also appeared to be highly motivated in becoming and
294 remaining part of the COVID-19 team. This appeared to be due to his perception of his expertise in
295 this field into which the pandemic predominantly falls in. He did not appear to be influenced by lack
296 of remuneration or suboptimal provision of other resources. He regarded many COVID-19 related
297 complications as routine in his day-to-day physiotherapy services.

298 *'.....because my area of specialisation is cardio-respiratory... it's like, a calling to me... I decided
299 ... whether they pay me or not, I will go and manage patients that have COVID...' (P6).*

300
301 One of the physiotherapists desired to support patients with COVID-19 in their periods of pain,
302 difficulties, and hopelessness because of her previous first-hand experience of having life-threatening
303 illnesses.

304 *'...I've had series of health conditions myself that got me thinking, will I ever be fine again? So,
305 I've had a first-hand experience of what it feels like to not have hope again. Just stay there and
306 be thinking like...let death just come already...' (P5).*

307
308 **Sense of professionalism**

309 All the interviewed physiotherapists stated not being initially invited to be part of the COVID-19 teams.

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2
3 310 *'...initially we were not invited... it is actually the physiotherapist that will have to go and be*
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5 311 *telling them...like an advocacy...Even the presidential taskforce, does not even have*
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7 312 *physiotherapy...'(P1).*
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13 314 They were motivated by the desire to publicise the important role of physiotherapy in the successful
14
15 315 management of COVID-19 as well as the competence and skills of physiotherapists.
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18 316 *'to my knowledge, I was the only physiotherapist in the frontline in the country as at that time.*
19
20 317 *...they saw the consequences of my action...they are now more well informed than they used*
21
22 318 *to be...when the coordinator of the isolation centre is talking...he usually makes reference*
23
24 319 *to...physio, there was no time he's giving a progress report that he doesn't make reference to*
25
26 320 *physiotherapy' (P2).*
27
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30 321
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32
33 322 The efforts yielded some positive outcomes with reports of increasing people within the health system
34
35 323 having information about the role of physiotherapy in COVID-19 management.
36
37

38 324 *'...the national vice president had written to the NCDC, WHO...because I remember*
39
40 325 *there was a circular from the ministry of health requesting for the training of health*
41
42 326 *professionals, and they requested for physiotherapists...In this way, I think they are*
43
44 327 *getting to know. The national body has also submitted our own guidelines...'(P1).*
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48 328
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51 329 Half of the frontline physiotherapists appeared unfazed by their initial lack of recognition by other
52
53 330 members of the COVID-19 teams, and believed that other health professionals, particularly medical
54
55 331 doctors and nurses, would acknowledge the importance of physiotherapy when they observed the
56
57 332 positive clinical effects of their actions on patients with COVID-19. These physiotherapists expressed
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59 333 confidence in the uniqueness of their knowledge and clinical expertise.
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3 334 ‘...I just usually do not feel bad because I know what I know and I know nobody that is
4
5 335 not a physiotherapist knows what I know and cannot do what I do. It was going to be
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7 336 a matter of them appraising their actions before me coming... I acted, I acted, and they
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10 337 saw the result of my actions. They saw the result of my actions, it gave me that feeling
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12 338 of satisfaction, that feeling of “yes, I’m the boss”, this field I know it better... I was
13
14 339 going to represent not just myself but the profession. I was going in to make a
15
16 340 statement, but for me how best to make a statement than your action and the result
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18
19 341 of your action? I never felt threatened’ (P2).
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25 343 **The breaking point: finally exiting the team**

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27 344 All the interviewed physiotherapists were disappointed that despite their increased advocacy about
28
29 345 physiotherapy, and perceived competence in discharging their clinical duties, their recognition and
30
31 346 respect within COVID-19 teams in Nigeria remained very poor. They believed that this was associated
32
33
34 347 with the teams being clinically and administratively led by medical doctors.
35

36
37 348 ‘...We made our clinical presentation about patient management and how we are supposed to
38
39 349 be an integral part of the team. We made some recommendations. Then, we met the head of
40
41 350 the infectious unit team outside, he told us point-blank that there is no provision for us...’ (P7).
42
43
44 351 ‘...So many things happened...that suggest we were not recognised. They [doctors] did not see
45
46 352 us as important. Why? Because it was the doctors that were coordinating everything. When
47
48 353 they were demanding for the names of those that should be paid, they requested forty names
49
50 354 from the hospital. The coordinator who is a consultant [physician] decided to put the names of
51
52 355 all the doctors and left out other health workers including physiotherapists, not even one of
53
54 356 them...’ (P8).
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This led to three of the interviewed physiotherapists not wanting to remain part of the COVID-19 team after the first COVID-19 wave in Nigeria. They refused to re-join the teams when the second wave started in Nigeria.

'...I was so discouraged that I did not want to be part of the team again. So, when the second wave started...I said I was not going back...'(P7).

2. Problems with multidisciplinary teamwork

All the interviewed physiotherapists expected a multidisciplinary approach to COVID-19 treatment in Nigeria which recognised the role of each professional group, providing equal opportunities for health professionals to bring on their expertise.

'...a multidisciplinary team in which everyone will work together as one without anyone thinking others are inferior...' (P6).

However, the frontline physiotherapists felt that this was deliberately not observed by the medical COVID-19 team leads in the government hospitals.

'...they see a condition that should be referred to "A" they hold it because they have grudges with "A". When they see a condition that should be referred to "C" they don't refer it because they want to take all the glory...whereas nobody is an island, so why not do your part and refer to the next person...(P3).

Lack of teamwork in the ICU and COVID wards of government hospitals

Multidisciplinary teamwork was reported as suboptimal in the government owned COVID-19 treatment and isolation centres and the government hospitals. All the interviewed frontline

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3 381 physiotherapists viewed the nurses as complementary and supportive of physiotherapy roles,
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5 382 although this appeared to be sometimes hampered by poor infrastructure such as irregular electricity
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7 383 supply that impacted on the use of suctioning machines.
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10 384 *‘...Times when I needed to turn the patient and the patient was bigger than me, if I*
11
12 *don’t get the porter, I could get the ICU nurse to help me out...’ (P5).*
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14

15 386 *‘...most of the time suctioning is done by nurses in the wards...we may need the patient*
16
17 *to be suctioned during treatment. They do that for us. The only problem will be if there*
18
19 *is no light and there is no manual suctioning machine...(P1).*
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22
23 389 In contrast, the physiotherapists reported that most of the frontline doctors viewed other health
24
25 390 professionals including physiotherapists as inferior, disregarding them as team members.
26
27

28 391 *‘...so the nurse was like...what you did today, I was in awe... The doctor that was on duty was*
29
30 *like “don’t do that, don’t do that, he will asphyxiate...” (P3).*
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36 394 Consequently, they believed that this led to doctors taking over the role of some multidisciplinary
37
38 395 team members in the government hospitals.
39
40

41 396 *‘...it is the house officers [medical interns] that do the nurse’s job...’ (P8).*
42
43

44 397 *‘...the nurses doubled as record officers. I did not actually see them work in the ward...(P7).*
45
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47 398
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49
50 399 In contrast, multidisciplinary teamwork was perceived as adequate by frontline physiotherapists in
51
52 400 the private COVID-19 treatment and isolation centres.
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55 401 *‘...we had a very strong teamwork and team spirit, so it was really easy...’ (P5).*
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403 ***Discrimination of physiotherapists within COVID-19 teams***

404 The six physiotherapists working in the government-owned COVID-19 health facilities felt that they
405 were treated and regarded less favourably than other health professionals in the COVID-19 teams by
406 the medical team leads.

407 They perceived that this manifested as lack of remuneration, protective equipment, and
408 accommodation.

409 *'...the doctors are paid, and the physiotherapists are not being paid...' (P6).*

410 *'...Doctors are provided accommodation, we are not...' (P7).*

411 Three frontline physiotherapists reported not being informed, tested for COVID-19, or supported in
412 any way when they were exposed to the virus in contrast to their medical colleagues. They believed
413 that their discriminatory experiences were due to interprofessional rivalry.

414 *'...interprofessional rivalry in our clime here...there is nothing the medical doctor will do
415 without having a nurse ... They look at others as competing with them...' (P1).*

416
417 Three frontline physiotherapists working primarily in the ICU and COVID wards of government
418 hospitals and one frontline physiotherapist working in a private COVID isolation/treatment centre
419 reported attempts to either completely remove physiotherapists from the COVID-19 teams by the
420 government COVID-19 taskforce led by medical doctors, or to side-line physiotherapists by assigning
421 their roles to other health professionals by the hospital medical team leads. Three physiotherapists
422 reported feeling 'alone' and being the lone physiotherapist within their teams in contrast to other
423 professionals. They described relying on their knowledge of medical presentations and clinical
424 expertise to feel comfortable relating with the other health professionals.

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3 425 *'...I felt like a loner because I was the only physiotherapist. Nobody could really relate with me.*
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5 426 *I couldn't relate with most people. But because of the vast knowledge of my training, in my*
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7 427 *pre-clinicals we did everything that medical doctors would do...did. So, I could relate with the*
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10 428 *medical presentations better...' (P3).*
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16 430 Over half of the physiotherapists reported no longer seeking validation from the medical teams after
17
18 431 learning to be contented with patients' appreciation of their positive clinical impact.

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21 432 *'...so I wasn't really seeking...the validation from them [medical team leads]...' (P4).*
22

23
24 433 *'...I am not here to impress anybody but to make my patient better...' (P6).*
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26
27 434 **Better acceptance of physiotherapists in private non-governmental or state-owned non-hospital**
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29 435 **centres**

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31
32 436 In contrast to the experience of frontline physiotherapists engaged in government hospitals, the two
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34 437 physiotherapists in the private COVID centres felt accepted and recognised by the other team
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36 438 members. This was particularly by the medical team leads, after they had understood physiotherapy
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38 439 roles in COVID-19 management. The physiotherapists greatly appreciated this, and this seemed to
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41 440 encourage and motivate them.

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44 441 *'...the medical colleagues ... they are a wonderful set of people... they were just treating me*
45
46 442 *like a King... that acceptance from them...gave me the psychological balance to focus on what*
47
48 443 *I wanted to do...' (P3).*
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54 445 They regarded their acceptance by the medical team leads as more important than the provision of
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56 446 physiotherapy equipment which was often lacking. These two physiotherapists also reported no
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discrimination in terms of remuneration, provision of accommodation and other services provided to other members of the COVID-19 team.

'...we were paid well...and they foot all the bills' (P3).

'...they provided accommodation to us and the other team members...' (P5).

3. Broad ranging impact on physiotherapists' personal and professional lives

Stigmatisation that is wide ranging

All the physiotherapists reported being stigmatised by either physiotherapy colleagues who were not involved in the frontline management of patients with COVID-19, other health professional colleagues, extended family members, friends, acquaintances, or the general public for fear of contracting the virus from them.

'Some people find it offensive when I try to say hi to them from a distance because I am involved with treating patients with COVID-19 ...'(P7).

'I had been hearing about stigma... I didn't really know the impact in the lives of people until I was a front liner you know (sighs). I didn't tell anybody at home, I only told 2 of my siblings, and one of them is a step sibling and he went ahead to mention it errr...in a very demeaning way that err...I should not be allowed to do certain things that I actually wanted to do errrr... I can't go into the details of that because they are my personal life...the stigmatization really got to me for some days and I was like, is it a crime to actually be a health professional that is working to actually salvage his generation...? I think they just took advantage of the information I actually put at his door step and used it against me so I got to know that yes stigma could be a very difficult thing for patients with COVID-19 themselves to deal with, so that made me actually know that if somebody is actually positive if he doesn't want to

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3 470 *communicate about it I can really relate with him because it is quite difficult what people can*
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5 471 *do with stigmatisation...’ (P3).*
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11 473 Two of the physiotherapists who were stigmatised by extended family members, found succour with
12
13 474 some of their physiotherapy colleagues and friends.
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16 475 *‘...my colleague spoke with me; my friends just encouraged me...she really helped me... I should*
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18 476 *not put my mind there... I’m doing something very honourable and venerable so I should not*
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20 477 *allow anybody to get to my head...’ (P3).*
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27 479 Friends were the source of stigmatisation for two of the physiotherapists.
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30 480 *‘I mentioned it to my friend, since then my friend ran away from me because I was*
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32 481 *working in the isolation centre...’ (P8).*
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35 482 All the physiotherapists were stigmatised by the public.
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38 483 *‘...But another challenge we had to deal with was the thought of coming out of the centre,*
39
40 484 *because the centre was located on the island. Even after you finished the work for the day and*
41
42 485 *you clean up... once you step out of the centre, people see that you are coming out of the*
43
44 486 *centre...everybody wants to avoid you...’ (P5).*
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50 488 Stigmatisation was reported as the greatest challenge by one of the physiotherapists, and she desired
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52 489 external support. For another physiotherapist, stigmatisation by the general public was through social
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54 490 media (Twitter and Facebook). He had gone public about his infection with the virus in a bid to make
55
56 491 Nigerians understand the reality of COVID-19 and reduce the conspiracy theories regarding COVID-19
57
58 492 in Nigeria. He was rather treated with suspicion by the Nigerian public who thought that he was being
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used by the government. The physiotherapist was consequently concerned about the possible impact of this on his family members.

'...people said that the government paid me money...Then I worried about my parents...my siblings...' (P4).

He therefore avoided informing his family about his involvement and had to rely on the acceptance and support from professional colleagues and religious associates. Consequently, most of the frontline physiotherapists avoided informing family members and friends about their involvement in the frontline. Three of the physiotherapists reported relying on their immediate nuclear family as their only source of support. Physiotherapy colleagues were the source of stigmatisation for two of the frontline physiotherapists, which they found difficult, as they were also dealing with discrimination within COVID-19 multidisciplinary teams.

'...they did not provide us accommodation like the doctors and others...so when we get to the department, we were being treated like foreigners, because everybody started avoiding us...' (P7).

Fear, anger and having 'off days'

All the physiotherapists gained confidence with a clearer understanding of their roles in COVID-19 management. Their initial fear about the uncertainty surrounding COVID-19 was no longer present.

'... Now, the fear, has been replaced with a sense of purpose...' (P7).

All the interviewed frontline physiotherapists were afraid of getting infected with COVID-19 or dying from it in the frontline.

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2
3 516 *‘...I mean I got COVID so... I was a bit scared...like...what’s going to happen, am I gonna*
4
5 517 *die? (P4).*
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11 519 One of the physiotherapists was not afraid of death as he assessed his risk as very low, although he
12
13 520 also sought spiritual sustenance.
14
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16 521 *‘...I prayed about it and then, I allowed God to take control...’ (P6).*
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22 523 Two of the physiotherapists had their fear reinforced through communication with or infection of
23
24 524 other COVID-19 team members. They attempted to reduce this fear by taking steps to minimise the
25
26 525 severity of a potential disease or by convincing themselves that the benefits of their involvement were
27
28 526 worth the risk. For two of the physiotherapists, the fear of getting infected was paralysing, and they
29
30 527 described having ‘off days’ in relation to this, when they felt like being alone, and not being involved
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32 528 in activities they usually enjoyed.
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36 529 *‘...I was feeling scared, ...really really scary, and I was really really down...’ (P2).*
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42 531 They described critically analysing their risk of exposure and infection during such ‘off days’. Recovery
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44 532 from this debilitating fear was facilitated by convincing themselves that they were unlikely to have
45
46 533 been exposed and infected or feeling that they were unlikely to experience a severe disease even
47
48 534 when infected or remembering their patients with COVID-19 who were relying on them for survival.
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51 535 *‘...those that died ... are those having comorbidities, ... I didn’t think I fit into that category...’*
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53 536 *(P2).*
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56 537 *‘...the thought of the patients looking up to me made me want to get up...’ (P3).*
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539 One of the physiotherapists reported becoming angry at getting infected with the virus whilst working
540 in the frontline. He blamed himself and regretted exposing himself and his family members to the
541 virus in a health system that did not even acknowledge or appreciate his role as a physiotherapist.

542 *'I was angry because I got it because I volunteered. In the western world, when*
543 *volunteers go to an active environment, they are well protected. Coming into an*
544 *environment where you are not even acknowledged...' (P7).*

545
546 All the physiotherapists felt that exposure to the virus and infection of some of their colleagues was
547 due to inadequate provision of personal protective equipment (PPE), and lack of support from both
548 the health system and the government.

549 The fear of infecting beloved family members had severe impact on physiotherapists' personal lives
550 and mental health. Family interaction and relationship became adversely affected as they stopped or
551 minimised contact with their close family members in an attempt to protect them.

552 *'...I would just get home and lock myself in the room... because of the fear...' (P5).*

553 *'...my wife, ...was pregnant, so we had to keep distance...' (P8).*

554
555 All the frontline physiotherapists were also dreading the possibility of losing their patients to
556 complications of COVID-19.

557 *'...Scary in terms of those in the ICU, on oxygen, with an SPO2 of below 80, nobody*
558 *wants a patient to die in his hands...' (P2).*

559 *'...as I am treating the patient, I will be like arrrh, this patient might not do well...(P6).*

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561 **Feelings of severe loss**

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562 All the frontline physiotherapists expressed feelings of severe loss in terms of prolonged use of
563 uncomfortable and restrictive clothing; little or no physical contact or support from family and friends;
564 diminished social circle from reduced religious and other social activities; reduced physical activity;
565 adverse economic outcomes from loss of income from private practice; increased transportation
566 costs; and their patients dying of COVID-19 complications.

‘...having to wear a facemask every day, ...the back of my ears... are beginning to hurt (P4).

‘...We have to protect ourselves with all these uncomfortable stuffs...’ (P8).

*‘...limited my movement... Visiting friends has drastically reduced... churches were even locked
up...’ (P1).*

*‘I had to avoid everybody, I had to avoid my wife, I had to avoid my kids, I had to be locked
up...’ (P7).*

*‘...we were accommodated ...so I had to change my environment totally, I changed my friends,
I changed everything...’ (P3).*

‘...affected my work... I’m a private practitioner and patients were not coming (P3).

*‘...but when the pandemic came ...the cash flow was going down. There was financial strain...
The financial impact affected me personally’ (P7).*

*‘...before, I could easily use a public transport...now I have to use Uber so it’s even more
costly...’ (P5).*

4. Lack of support for perceived physiotherapy roles from prevention through to rehabilitation

582 All the frontline physiotherapists believed they were supposed to be involved in preventive efforts,
583 therapeutic strategies, and long/short-term rehabilitation. Preventive efforts entailed primary

584 prevention of infection and secondary prevention of severe disease. The frontline physiotherapists
585 emphasized increasing physical fitness and reducing deconditioning from COVID-19 lockdowns.
586 All but one of the frontline physiotherapists were not cardiopulmonary physiotherapists and they
587 reported also fulfilling these roles.

588 *'We all had to adapt as respiratory physiotherapists...' (P7).*

589

590 This could be because many cardiopulmonary physiotherapists were not recommended to the
591 frontline by their departments.

592 *'...the department [physiotherapy] started choosing those who will go first ... I realised that I
593 wasn't among those who were going...' (P6).*

594

595 ***Physiotherapists' roles in COVID-19 management are not fully harnessed in Nigeria***

596 All the interviewed physiotherapists reported not being optimally involved in the therapeutic stages
597 of COVID-19 management. They also did not view themselves as adequately involved in preventive
598 efforts and in the rehabilitation and long-term management of the complications from the disease.

599 *'they have...post infection symptoms, a lot of them require physiotherapy...but we don't see
600 them' (P1).*

601

602 ***'On your own': lack of material and psychological support***

603 All but two frontline physiotherapists felt unsupported by the health system and the government.
604 They interpreted the lack of provision of PPE, lack of sanitation facilities, lack of remuneration and

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3 605 allowances, and lack of health and life insurance in the case of infection, severe disease, and death, as
4
5 606 very discouraging.
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8 607 ‘..... we don’t feel confident that if you get infected that you are not on your own...’ (P1).
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11 608 ‘...we don’t have equipment, we don’t have good funding, remuneration is zero...’ (P2).
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14 609 ‘The PPEs were not the best quality, ... I had no help; I had no support...I was not even paid...’
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16 610 (P7).
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22 612 **Physiotherapists’ reliance on self-support and support of one another**

25 613 All six frontline physiotherapists in the government facilities reported learning to manage their
26
27 614 expectations and depend only on themselves and fellow frontline physiotherapists. More senior
28
29 615 physiotherapists were supporting and guiding the younger ones.
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32 616 ‘...and you call them [junior physiotherapists] before they start their work. ...how was your
33
34 617 night? Ask about their health. ... And then try to explain to them what happened the previous
35
36 618 day. If they have some cases that they think they [junior physiotherapists] need special
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38 619 information about, we [senior physiotherapists] try to do that for them...’ (P1).
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45 621 **Discussion**

48 622 **Statement of principal findings**

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51 624 The study explored the experiences of physiotherapists managing patients with COVID-19 in the
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53 625 frontline in Nigeria. Results highlighted the physiotherapists’ desire to be included in the COVID-19
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55 626 teams in Nigeria seemed to be predominantly driven by their personal agencies, sense of
56
57 627 professionalism, previous experience managing highly infectious diseases, or being a cardiopulmonary
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physiotherapist. The frontline physiotherapists, particularly those in the government hospitals in Nigeria, felt that the road to becoming members of the COVID-19 team was arduous and came about through their own sustained advocacy. Even so, some of them exited the team, and were no longer involved in the frontline out of frustration. This was because they could no longer cope with the perceived psychological, emotional, and financial impact of feeling discriminated against.

Interpretation within the context of the wider literature

In contrast to the findings of this current study, the availability or lack thereof of PPE and COVID-19 allowances were reported as a general problem affecting health workers in other studies in Nigeria^{26,27}, and China^{7,8} which did not include physiotherapists. Inadequate provision of PPE appeared to be affecting all health care professionals equally in studies that included physiotherapists in the UK and Spain^{10,11}. Similarly, the lack of PPE was reported as a global problem affecting all world regions, especially lower income countries, and this contributed to the high burden of infections and deaths among healthcare workers²⁸.

Discriminatory experiences reported by the frontline physiotherapists in relation to managing patients with COVID-19 as frontline healthcare workers is a novel finding in this study and has not been reported by other studies of patients with COVID-19. This finding aligns with a general lack of recognition of the role, scope and autonomy of physiotherapy by individuals, healthcare professionals especially physicians, government and the society globally, although this might be worse in low income settings^{29–33}. The frontline physiotherapists felt that they were not regarded as legitimate frontline members of the COVID-19 teams in Nigeria. The frontline physiotherapists in government hospitals expressed discrimination in relation to lack of remuneration, inadequate provision of PPE and accommodation plus little or no professional recognition by medical team leads. In contrast, the frontline physiotherapists in the private COVID isolation and treatment centres in Nigeria reported being recognised, respected, and supported by their medical team leads and other healthcare professionals in their teams. There were no reports of any form of discrimination from qualitative

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3 653 studies of physiotherapists who were practising in the United Kingdom and Spain^{10,11}. Discrimination
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5 654 of physiotherapists as frontline healthcare workers in the COVID-19 pandemic in Nigeria may be
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7 655 associated with the interprofessional rivalry rampant in the Nigerian health sector ^{34–38}. The perceived
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9 656 or actual discrimination of other healthcare professionals by some medical team leads in Nigeria might
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12 657 hamper professional autonomy, professional identity, professional expertise and interprofessional
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14 658 harmony. Another reason for the discrimination of physiotherapists as frontline healthcare workers,
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16 659 particularly in the hospitals, could be because the COVID-19 teams in these facilities were led by
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18 660 infectious disease medical experts. These specialists may have had little or no clinical interaction with
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20 661 physiotherapists in the hospitals prior to the COVID-19 pandemic probably due to their limited
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22 662 involvement in acute care settings in Nigeria. It is therefore not surprising that the frontline
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24 663 physiotherapists felt that their roles in health promotion, disease prevention, treatment, and
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26 664 rehabilitation in relation to the pandemic were not adequately recognised and utilised. This might
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28 665 have adverse implications for patients with COVID-19 in Nigeria.
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33 666 The lack of multidisciplinary teamwork and the perceived discrimination of physiotherapists in the
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35 667 frontline by the team leads might undermine an effective response to the COVID-19 pandemic in
36
37 668 Nigeria. Teamwork is required for optimal quality and safety of patients, the well-being of healthcare
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39 669 professionals, and good financial outcomes for healthcare systems³⁹. Experts have reported that
40
41 670 scarce resources during pandemics can trigger biases against other professionals, with team leads
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43 671 likely to protect only their own group³⁹. This can stifle communication between team members, and
44
45 672 the coordination of equipment and other materials across professions and organisations that are
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47 673 critical in implementing an effective response to the COVID-19 pandemic³⁹. Frontline physiotherapists
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49 674 in Nigeria felt discriminated against in relation to recognition of their expertise, and the quantity and
50
51 675 quality of PPE made available to them compared with other COVID-19 team members. Scarcity of
52
53 676 resources and physiotherapy services not being accessible to all people in the society were identified
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55 677 as the most frequently experienced ethical issues by physiotherapists both in the African region of the
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57 678 World Physiotherapy as well as globally⁴⁰. Teamwork characterised by effective coordination of
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679 expertise and resources across health professional groups can ameliorate these problems.

680 Communication between professional groups is also important. Communication should be accurate,

681 timely, cordial and reflective to enhance equitable distribution of resources and the quality of care³⁹.

682 The Nigerian health system need to encourage clinical team leads that acknowledge the diversity of

683 multidisciplinary team members required in effectively and efficiently managing the pandemic.

684 Although hierarchy is a key feature of healthcare systems and fosters coordination, it can also hamper

685 inclusiveness³⁹. Inclusive behaviour from team leads can ensure that members from other professional

686 fields can feel psychologically safe to participate and collaborate with multidisciplinary team

687 members. Medical doctors lead the COVID-19 teams in Nigeria. In high income countries,

688 physiotherapists and other healthcare professionals have also successfully led COVID-19 teams. The

689 Nigerian healthcare system needs to adopt a multidisciplinary team orientation with leadership that

690 ensures the individual well-being of all health professionals within COVID-19 teams. This can be a great

691 asset in the current and future infectious disease pandemics in Nigeria.

692 It was surprising that only one of the interviewed frontline physiotherapists was a cardiopulmonary

693 physiotherapist. Comparison with previous studies is impossible because they did not specify the

694 physiotherapists' specialty areas^{10,11}. The only cardiopulmonary physiotherapist in this study reported

695 not being initially put forward to join the COVID-19 team. He reported making personal efforts that

696 made him to be included later. Similarly, one of the cardiopulmonary physiotherapists in the Public

697 Involvement and Engagement consultation group also reported not being invited to join the COVID-

698 19 multidisciplinary team as a frontline physiotherapist. He reported that despite being the only

699 cardiopulmonary physiotherapist in his hospital, his physiotherapy department recommended

700 physiotherapists from other specialty areas to join the COVID-19 team. The reason for this finding is

701 unclear. However, the results of this study suggest that previous experience managing highly

702 infectious diseases may have been the major factor influencing the recommendation from

703 physiotherapy departments. This might explain why the highest number of the frontline

704 physiotherapists were neurological physiotherapists. In contrast, the private COVID-19 centres were

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3 705 reported to have advertised for any available physiotherapists which may have led to none of their
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5 706 recruited frontline physiotherapists being cardiopulmonary physiotherapists. This finding could be
6
7 707 related to the few cardiopulmonary physiotherapists currently working in Nigeria ⁴¹. The involvement
8
9 708 of mostly non-cardiopulmonary physiotherapists in the management of patients with COVID-19 in the
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11 709 frontline in Nigeria might have meant that the frontline physiotherapists did not demonstrate the level
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13 710 of cardiopulmonary expertise that would have been the case for cardiopulmonary physiotherapists.
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15 711 This might partly explain why the medical team leads underestimated the potential role of the
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17 712 frontline physiotherapists in COVID-19 management in Nigeria. However, the frontline
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19 713 physiotherapists reported experiencing discrimination prior to being given any opportunity to
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21 714 demonstrate their expertise. The reported interprofessional rivalry between medical doctors and
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23 715 other healthcare professionals in Nigeria ^{34–36} may therefore be more important than the level of
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25 716 expertise of frontline physiotherapists in explaining the feelings of discrimination reported by the
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27 717 frontline physiotherapists.
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33 718 Reports of stigmatisation, fear, anger, feelings of severe loss, and lack of material and psychological
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35 719 support were common findings in other studies^{6–9}. Physiotherapists in this study had experiences of
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37 720 stigmatisation from physiotherapy colleagues who were not engaged in the frontline, other health
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39 721 professional colleagues, family members, friends, acquaintances, or the public. In contrast,
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41 722 physiotherapists in other countries did not report stigmatisation from their neighbours, acquaintances
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43 723 and the general public as physiotherapists were usually not perceived as being in regular contact with
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45 724 potentially infectious patients in their routine duties in those countries ^{10,11}. In Nigeria, the public often
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47 725 do not understand the difference between physiotherapists and medical doctors which might at least
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49 726 partly explain the stigmatisation of frontline physiotherapists by the public. There were no reports of
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51 727 stigmatisation from physiotherapy colleagues, other health professional colleagues, family members
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53 728 and friends in these studies ^{10,11}. In contrast, physicians and nurses managing patients with COVID-19
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55 729 were stigmatised by the general public in Iran ⁴².
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The fear experienced by frontline physiotherapists in Nigeria were in relation to the novelty of the virus, fear of infection, having severe disease, dying from the disease, or transmitting it to their loved ones. This aligns with findings from physiotherapists in other countries including the United Kingdom¹⁰ and Spain¹¹, and experiences of other health professionals including physicians and nurses in China^{7,8}, and Iran⁴². The frontline physiotherapists in Nigeria felt anger in response to getting infected whilst performing a duty for which they perceived they were not acknowledged by the medical team leads and the health system. Anger was experienced by frontline health workers in relation to the perception of abandonment by the government and breaking of lockdown guidelines in the United Kingdom¹⁰. Frontline physiotherapists in Spain felt anger at the roller coaster of other emotions they were feeling including fear, sadness, illusion, rage, uncertainty, panic, worry, grief, loneliness, and anxiety¹¹. Feelings of severe loss expressed in terms of restrictive uncomfortable clothing, loss of physical contact with family and loved ones, loss of spiritual activities, reduced physical activity and loss of income from private practice due to the lockdown align with findings from other studies^{6-8,10,11,42}. The complaints about the lack of provision of equipment, lack of emotional and psychological support in the government hospitals, and feelings of abandonment reported by the frontline physiotherapists in Nigeria have been felt elsewhere¹⁰.

Strengths and limitations

One of the strengths of this study is its novelty. This is the first study of physiotherapists managing patients with COVID-19 in the frontline in Nigeria. It is one of the very few studies globally that have explored the experiences of physiotherapists as COVID-19 frontline healthcare workers. Another strength of this study is that it was mainly conducted by local researchers with roots in the healthcare system. Furthermore, this study was made robust by the active participation of a Public Involvement and Engagement consultation group in the interpretation of results. Despite the strengths of this study, it had limitations. Data saturation could not be established due to the limited number of physiotherapists engaged in the frontline management of COVID-19 in Nigeria. Only eight of these physiotherapists consented to participate from the pool of about 20 physiotherapists engaged in

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3 756 managing patients with COVID-19 in the frontline in Nigeria at the time of this study. 20
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5 757 physiotherapists engaged as frontline COVID-19 health workers in a country of over 200 million people
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7 758 may highlight an underutilisation of physiotherapists in Nigeria. Considering the very few numbers of
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10 759 physiotherapists in Nigeria overall (as detailed in the methods section), and in the frontline, the
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12 760 number of participants in this study appears realistic and reflects the Nigerian 'reality'. Another
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14 761 potential limitation is that telephone interviews can prevent the recognition of non-verbal signals
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16 762 which might have influenced the interpretation of findings. However, available evidence suggests that
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18 763 there is no obvious difference between telephone and face to face interviews²¹. Telephone interviews
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20 764 have the added advantage that they allow safe data collection during a highly infectious disease
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22 765 pandemic and also afford some participants a greater freedom to discuss potentially difficult topics
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24 766 without having a sense of loss of confidentiality²¹.
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29 767 **Implications for policy, practice, and research**
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32 769 Increased advocacy for the involvement of physiotherapy (particularly cardiopulmonary
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34 770 physiotherapy) is required in Nigeria. Public awareness regarding physiotherapy needs to be
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36 771 intensified with physiotherapy associations in Nigeria having a significant role to play. This advocacy
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38 772 can be through mass media campaigns and community outreaches to educate the public, other
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40 773 healthcare professionals, and the Nigerian government about the areas and scope of physiotherapy.
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42 774 It is particularly important to provide enlightenment regarding the roles of cardiopulmonary
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44 775 physiotherapy and other fields of physiotherapy in the management of patients with COVID-19. As
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46 776 some medical specialists appeared to have had little or no clinical interaction with physiotherapists in
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48 777 the hospitals prior to the COVID-19 pandemic, interprofessional education needs to be instituted at
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50 778 Nigerian medical schools at the undergraduate and postgraduate levels. This can foster
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52 779 interprofessional respect and collaborative practice for patient-centred care. Frontline
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54 780 physiotherapists involved in managing patients with COVID-19 in Nigeria need to be better supported
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56 781 materially and psychologically by medical administrators, medical team leads, and the Nigerian
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government. However, physiotherapists in Nigeria may need to increase their capacity within the field of COVID-19 specifically, and within the area of cardiopulmonary practice generally. Healthcare policies in Nigeria need to promote the dignity of all health professions, rather than the superiority of one health profession to curb the pervasive interprofessional rivalry in the Nigerian health system. Nigeria needs a more inclusive healthcare system with team leads that respect and engage other frontline healthcare professionals for the effective management of the current pandemic and in preparation for future pandemics. Useful approaches for physiotherapy advocacy have been suggested. These include formation of physiotherapy task force for the quick improvement of the skills and knowledge of physiotherapists where necessary, active involvement of physiotherapists in the hospital triage, routine involvement of physiotherapists alongside medical and nursing staff in the management of patients with respiratory failure following viral infection⁵. Other approaches include multistakeholder engagement and support in strengthening rehabilitation. This can be through international organisations partnering with local organisations and initiatives, as well as with the country's government²⁹.

Conclusions

Physiotherapists managing patients with COVID-19 in the frontline in Nigeria felt that they were not regarded as legitimate members of the COVID-19 multidisciplinary teams by the medical team leads and the health system. Their experiences of discrimination were made worse by experiences of stigmatisation from extended family members, colleagues, and the public, coupled with perceived material and psychological losses due to the COVID-19 pandemic. There is a need to support and include physiotherapists as full members of interdisciplinary healthcare teams involved in the management of patients with COVID-19 in Nigeria to align with international standards of COVID-19 treatment.

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Declarations

Contributors: CNI-C conceived and designed the study. CNI-C collected the data. CNI-C analysed and interpreted the data, supported by CA, AA, EA and RG. CNI-C drafted the initial manuscript supported by RG. All authors contributed to a revised edition of the manuscript and CNI-C prepared the final manuscript.

Ethics approval and participant consent: Ethical approval was obtained from the University of Nigeria Teaching Hospital (NHREC/05/01/2008B-FWA00002458-1RB00002323-July 2020). Written information about the objectives of the study was emailed to eligible participants who indicated interest in participating. Written and verbal consent were obtained prior to interviewing.

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Data availability statement: Data is available on request due to ethical restrictions. Requests for data access may be made to the corresponding author (chinonso.chidobe@unn.edu.ng).

References

1. Thomas P, Baldwin C, Bissett B, Boden I, Gosselink R, Granger CL, et al. Physiotherapy management for COVID-19 in the acute hospital setting: clinical practice recommendations. J Physiother. 2020;
2. Lazzeri M, Lanza A, Bellini R, Bellofiore A, Cecchetto S, Colombo A, et al. Respiratory physiotherapy in patients with COVID-19 infection in acute setting: a Position Paper of the Italian Association of Respiratory Physiotherapists (ARIR). Monaldi Arch Chest Dis. 2020;90(1).
3. Sim K, Chua HC. The psychological impact of SARS: a matter of heart and mind. Cmaj. 2004;170(5):811–2.
4. Sanghera J, Pattani N, Hashmi Y, Varley KF, Cheruvu MS, Bradley A, et al. The impact of SARS-

- 830 CoV-2 on the mental health of healthcare workers in a hospital setting-A Systematic Review. J
- 831 Occup Health. 2020;62(1):e12175.
- 832 5. Pedersini P, Corbellini C, Villafañe JH. Italian physical therapists' response to the novel COVID-
- 833 19 emergency. Phys Ther. 2020;100(7):1049–51.
- 834 6. Chuang E, Cuartas PA, Powell T, Gong MN. "We're not ready, but i don't think you're ever
- 835 ready." Clinician perspectives on implementation of crisis standards of care. AJOB Empir
- 836 Bioeth. 2020;11(3):148–59.
- 837 7. Liu Q, Luo D, Haase JE, Guo Q, Wang XQ, Liu S, et al. The experiences of health-care providers
- 838 during the COVID-19 crisis in China: a qualitative study. Lancet Glob Heal. 2020;
- 839 8. Yin X, Zeng L. A study on the psychological needs of nurses caring for patients with
- 840 coronavirus disease 2019 from the perspective of the existence, relatedness, and growth
- 841 theory. Int J Nurs Sci. 2020;7(2):157–60.
- 842 9. Sun N, Wei L, Shi S, Jiao D, Song R, Ma L, et al. A qualitative study on the psychological
- 843 experience of caregivers of COVID-19 patients. Am J Infect Control. 2020;48(6):592–8.
- 844 10. Bennett P, Noble S, Johnston S, Jones D, Hunter R. COVID-19 confessions: a qualitative
- 845 exploration of healthcare workers experiences of working with COVID-19. BMJ Open.
- 846 2020;10(12):e043949.
- 847 11. Palacios-Ceña D, Fernández-de-Las-Peñas C, Florencio LL, de-la-Llave-Rincón AI, Palacios-Ceña
- 848 M. Emotional Experience and Feelings during First COVID-19 Outbreak Perceived by Physical
- 849 Therapists: A Qualitative Study in Madrid, Spain. Int J Environ Res Public Health.
- 850 2021;18(1):127.
- 851 12. Crăciun MD. Physiotherapeutic management for patients with Covid-19. In: Biomedical
- 852 Engineering Tools for Management for Patients with COVID-19. Elsevier; 2021. p. 149–62.

1
2
3 853 13. Mohammed ENA. Knowledge, causes, and experience of inter-professional conflict and rivalry
4
5 854 among healthcare professionals in Nigeria. BMC Health Serv Res. 2022;22(1):1–9.
6
7
8 855 14. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ):
9
10 856 a 32-item checklist for interviews and focus groups. Int J Qual Heal care. 2007;19(6):349–57.
11
12
13 857 15. O’Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative
14
15 858 research: a synthesis of recommendations. Acad Med. 2014;89(9):1245–51.
16
17
18 859 16. National Population Commission. No Title [Internet]. 2022. Available from:
19
20
21 860 <https://nationalpopulation.gov.ng>
22
23
24 861 17. Balogun JA. The path to our destiny: The transitioning of physiotherapy in Nigeria from
25
26 862 occupation to a true profession. J Niger Soc Physiother. 2020;19(1):19–35.
27
28
29 863 18. World Physiotherapy. No Title [Internet]. 2022. Available from:
30
31 864 <https://world.physio/membership/nigeria>
32
33
34 865 19. Odumodu IJ, Olufunlayo TF, Ogunnowo BE, Kalu ME. Satisfaction with services among
35
36 866 attendees of physiotherapy outpatient clinics in tertiary hospitals in Lagos State. J Patient
37
38 867 Exp. 2020;7(4):468–78.
39
40
41 868 20. Saunders B, Sim J, Kingstone T, Baker S, Waterfield J, Bartlam B, et al. Saturation in qualitative
42
43 869 research: exploring its conceptualization and operationalization. Qual Quant.
44
45 870 2018;52(4):1893–907.
46
47
48 871 21. Smith JA, Spiers J, Simpson P, Nicholls AR. The psychological challenges of living with an
49
50 872 ileostomy: An interpretative phenomenological analysis. Heal Psychol. 2017;36(2):143.
51
52
53 873 22. Smith JA, Shinebourne P. Interpretative phenomenological analysis. American Psychological
54
55 874 Association; 2012.
56
57
58 875 23. Clarke V, Braun V. Thematic analysis. In: Encyclopedia of critical psychology. Springer; 2014.
59
60

- 876 p. 1947–52.
- 877 24. Rampin R, Rampin V, DeMott S. Taguette (Version 0.10.1). Zenodo. Zenodo; 2021.
- 878 25. Chandra Y, Shang L. Inductive coding. In: Qualitative research using R: A systematic approach.
879 Springer; 2019. p. 91–106.
- 880 26. Okediran JO, Ilesanmi OS, Fetuga AA, Onoh I, Afolabi AA, Ogunbode O, et al. The experiences
881 of healthcare workers during the COVID-19 crisis in Lagos, Nigeria: A qualitative study. *Germes*.
882 2020;10(4):356.
- 883 27. Uzosike TC, Dan-Jumbo A, Bob-Manuel M, Alali AA, Lawson DS. Care of the Covid-19 Patients:
884 Experiences of Health Workers in Rivers State Nigeria. *Int J Trop Dis Heal*. 2020;1–15.
- 885 28. Burki T. Global shortage of personal protective equipment. *Lancet Infect Dis*. 2020;20(7):785–
886 6.
- 887 29. Barth CA, Donovan-Hall M, Blake C, Jahan Akhtar N, Capo-Chichi JM, O’Sullivan C. A Focus
888 Group Study to Understand the Perspectives of Physiotherapists on Barriers and Facilitators
889 to Advancing Rehabilitation in Low-Resource and Conflict Settings. *Int J Environ Res Public*
890 *Health*. 2021;18(22):12020.
- 891 30. Mamin FA, Hayes R. Physiotherapy in Bangladesh: inequality begets inequality. *Front Public*
892 *Heal*. 2018;6:80.
- 893 31. Sturm A, Edwards I, Fryer CE, Roth R. (Almost) 50 shades of an ethical situation—
894 international physiotherapists’ experiences of everyday ethics: a qualitative analysis.
895 *Physiother Theory Pract*. 2022;1–18.
- 896 32. Igwesi-Chidobe CN, Bishop A, Humphreys K, Hughes E, Protheroe J, Maddison J, et al.
897 Implementing patient direct access to musculoskeletal physiotherapy in primary care: views
898 of patients, general practitioners, physiotherapists and clinical commissioners in England.

- 899 Physiotherapy [Internet]. 2021;111:31–9. Available from:
900 <https://www.sciencedirect.com/science/article/pii/S0031940620303886>
- 901 33. Igwesi-Chidobe C. Obstacles to obtaining optimal physiotherapy services in a rural community
902 in southeastern Nigeria. *Rehabil Res Pract*. 2012;2012.
- 903 34. Mayaki S, Stewart M. Teamwork, Professional Identities, Conflict, and Industrial Action in
904 Nigerian Healthcare. *J Multidiscip Healthc* [Internet]. 2020;13:1223–34. Available from:
905 <http://doi.org/10.2147/JMDH.S267116>
- 906 35. Salisu A, Hauwa I, Abubakar M, Ramla F, Mukhtar I, Nafisa N. Salisu AI, Hauwa IK, Abubakar
907 MA, Ramla F, Mukhtar IG, Nafisa NY. Inter-professional rivalry in Nigerian health sector: a
908 search for a potential beginning. *Kanem J Med Sci*. 2020;14(1):18–23.
- 909 36. Badejo O, Helen S, Seye A, Van Belle S. Confronting power in low places: historical analysis of
910 medical dominance and role-boundary negotiation between health professions in Nigeria.
911 *BMJ Glob Heal*. 2020;5(9):e003349.
- 912 37. Aregbeshola BS. Disharmony and unhealthy rivalry among health professionals in Nigeria.
913 2018.
- 914 38. Alubo O, Hunduh V. Alubo O, Hunduh V. Medical dominance and resistance in Nigeria's
915 health care system. *Int J Heal Serv*. 2017;47(4):778–94.
- 916 39. Mayo AT. Teamwork in a pandemic: insights from management research. *BMJ Lead*.
917 2020;leader-2020.
- 918 40. Fryer C, Sturm A, Roth R, Edwards I. Scarcity of resources and inequity in access are
919 frequently reported ethical issues for physiotherapists internationally: an observational
920 study. *BMC Med Ethics*. 2021;22(1):1–16.
- 921 41. Oke K, Birabi B, Oghumu S. Physiotherapists' level of involvement in patterns of acute care

- 1
2
3 922 cardiorespiratory physiotherapy practice in Nigeria. *Fizjoterapia Pol.* 2015;15(2):110–8.
4
5
6 923 42. Alizadeh A, Khankeh HR, Barati M, Ahmadi Y, Hadian A, Azizi M. Psychological distress among
7
8 924 Iranian health-care providers exposed to coronavirus disease 2019 (COVID-19): a qualitative
9
10 925 study. *BMC Psychiatry.* 2020;20(1):1–10.
11
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13 926
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Appendix 1: interview schedule

1. Demographic information

Age

Gender

Education

Specialisation

Years of practice

2. Could you tell me about becoming a physiotherapist?
3. What do you like most about being a physiotherapist?
4. Could you tell me what led to you becoming involved in caring for patients with COVID-19?
5. Could you tell me about the activities you undertake in working with patients with COVID-19?
- Probe for knowledge; skills; social/professional role and identity; beliefs about capabilities; beliefs about consequences; environmental factors.
6. What do you think about the way COVID-19 is being managed in your health facility?
- Prompts: What are the expectations on you managing COVID-19? What are the facilitators or barriers to your treatment of COVID-19?
7. How has it been for you since COVID-19 started in Nigeria?
- Prompts: What are the differences between work before the pandemic and during the pandemic? What are the changes and challenges in your work since COVID-19?
8. What is it like for you to care for COVID-19 patients?

Prompts: How does it make you feel? What were your feelings before the pandemic, during the first day of COVID-19 treatment and currently?

9. How have you coped with the changes and challenges in your work since COVID-19?

Prompt: Has anything helped or made things more difficult? What is the available support and what support do you still need?

10. Can you tell me a bit about the relationship between your work and personal life?

Prompts: What was it like before COVID-19? What is it like now?

11. Is there anything else you want to tell me that I haven't given you the chance to talk about?

Probe for insights they may have had from this pandemic.

Standards for Reporting Qualitative Research (SRQR)*

<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1/1-3
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	1-2/6-35

Introduction

Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	2-3/37-68
Purpose or research question - Purpose of the study and specific objectives or questions	3/69-71

Methods

Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	3-7/86-166
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	3-4/73-77
Context - Setting/site and salient contextual factors; rationale**	4/90-93
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	4-6/94-132
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	26/669-672
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	6/133-144

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	6, supplementary file 1/133-144, supplementary file 1
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	7/168-175
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	6-7/146-166
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	6-7/145-166
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	7/152-161

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	7-20/179-523
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	7-20/184-527

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	21-26/529-663
Limitations - Trustworthiness and limitations of findings	25/643-648

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	26/675
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	26/673-674

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:
O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

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